Appendix D

I-395 PD&E & IMR STUDY

Reanalysis
I-395 IMR PD&E Traffic Study

Florida Department of Transportation

FM: 251688-1-32-01

Study Location:

Section 87200/SR 836/I-395 from I-95 Interchange to Mac Arthur Causeway (MP 11.732 to 13.048)

FDOT Project Manager: Vilma Croft, P.E.
T.Y. Lin Project Manager: Joe L. Gómez, P.E.

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June 2013

Final Report
I-395 IMR Traffic Reanalysis Study
FM: 251688-1-32-01

Location: Section 87200/SR 836/I-395 from I-95 Interchange to Mac Arthur Causeway (MP 11.732 to 13.048)

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June 2013

INTERCHANGE MODIFICATION REPORT
TRAFFIC REANALYSIS STUDY

I-395 from I-95 Interchange
to Mac Arthur Causeway
FM #: 251688-1-32-01

C. H. Perez & Associates Consulting Engineers, Inc (P&A) as a sub consultant to T.Y. Lin International, a consultant to the Florida Department of Transportation (FDOT) District 6, has performed a limited traffic reanalysis of the I-395 PD&E and IMR Evaluation prepared by Metric Engineering in July 2009. The objective of this reanalysis is to assess the relative changes in traffic operations resulting from the proposed modification to the recommended alternative 3 (record of decision) from the I-395 PD&E Study and Preliminary Engineering Report originally prepared by Metric Engineering, Inc. This Traffic Reanalysis Study report assess the traffic operational impacts of the proposed redesign of the recommended alternative in the October 8, 2009 record of decision for this project. The redesign is based on a concept developed and prepared by BCC Engineering (another sub consultant to T.Y. Lin International) as of February 2013. Design documents including exceptions, justification statements and design plans are being submitted under separate cover for your review. Upon your review and acceptance of the findings and recommendations from the Traffic Reanalysis Study report, please acknowledge your concurrence by signing and dating this request in the space provided below and then return a signed copy for the project files.

June 21, 2013

Prepared by:

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for FHWA Division Administrator

7/12/13
Date

EXECUTIVE SUMMARY

C. H. Perez & Associates Consulting Engineers, Inc (P&A) as a sub consultant to T.Y. Lin International, a consultant to the Florida Department of Transportation (FDOT) District 6, has performed a limited traffic reanalysis of the I-395 PD&E and IMR Evaluation prepared by Metric Engineering in July 2009. The objective of this reanalysis is to assess the relative changes in traffic operations resulting from the proposed modification to the recommended alternative 3 (record of decision) from the I-395 PD&E Study and Preliminary Engineering Report prepared by Metric Engineering, Inc. in July, 2009. The proposed modification considered is based on the design concept developed by BCC Engineering (another sub consultant to T.Y. Lin International) as of February 2013.

Based on the available data (contained in the original analysis prepared by Metric Engineering, Inc.) and the findings of this reanalysis, the "Modified Recommended Alternative with Additional Lanes" will improve upon the projected operational performance of the "Recommended Alternative (Record of Decision)" due to the increased capacity that will result from the additional lanes. Both alternatives represent a significant improvement in operations over the "No Build" alternative particularly in 2040 where major deficiencies along various segments on I-395 would develop as a result of the increased future traffic demand on the existing roadway infrastructure. It should be noted that in 2040 the westbound on-ramp connecting to the mainline of I-395 westbound is projected to operate at LOS 'D' which while acceptable, indicates that the performance of this ramp could be susceptible to significant changes in the future land use patterns as a result of any potential redevelopment within the project environs.

The operational analysis of the surface street intersections that are anticipated to be impacted by the modified traffic circulation patterns that would result from the modified alternative indicate that the following localized improvements may need to be coordinated in conjunction with the City of Miami and/or Miami-Dade County. It should be noted that these improvements would serve to mitigate some of the deficiencies that the affected intersections that were already projected based on an analysis of the conditions for the record of decision:

<u>NE 14th Street at N Miami Avenue:</u>

- Modify future intersection signal timing plans for the 2030 and 2040 peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative. The signal timing plan proposed for the 2020 Peak period in the ROD is sufficient to accommodate the traffic circulation patterns for the modified alternative during the 2020 peak period.

<u>NE 14th Street at NE 2nd Avenue:</u>

- Modify future intersection signal timing plans for all peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative.
- Reconfigure the lane utilization on the eastbound approach to include an exclusive right turn lane plus a shared through/left turn lane to accommodate the modified traffic circulation patterns during the 2030 and 2040 peak periods.

- Add exclusive left turn lane to the southbound approach and reconfigure the remaining lanes to one through lane and one through right turn lane to accommodate modified circulation traffic patterns during the 2030 and 2040 peak periods.

NE 13th Street at NE 2nd Avenue:

- Add a lane to the southbound approach and reconfigure the lane utilization to include dual right turn lanes and one through lane. The dual right turn lane configuration is anticipated to better accommodate the increased right turn demand during the peak periods of all three years.

NE 13th Street at NE 1st Avenue:

- Modify future intersection signal timing plans for the 2030 and 2040 peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative. The signal timing plan proposed for the 2020 Peak period in the ROD is sufficient to accommodate the traffic circulation patterns for the modified alternative during the 2020 peak period.
- Change lane utilization on the northbound approach to better accommodate the new traffic circulation pattern during the 2030 and 2040 peak periods to include exclusive dual left turn lanes plus two through lanes.
- Add through lane on the westbound approach such that the total number of through lanes will increase from three to four.

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1.0 INTRODUCTION

C. H. Perez & Associates Consulting Engineers, Inc (P&A) as a sub consultant to T.Y. Lin International, a consultant to the Florida Department of Transportation (FDOT) District 6, has performed a limited traffic reanalysis of the I-395 PD&E and IMR Evaluation prepared by Metric Engineering in July 2009. The objective of this reanalysis is to assess the relative changes in traffic operations resulting from the proposed modification to the recommended alternative 3 (record of decision) from the I-395 PD&E Study and Preliminary Engineering Report prepared by Metric Engineering, Inc. in July, 2009. The proposed modification considered is based on the design concept developed by BCC Engineering (another sub consultant to T.Y. Lin International) as of February 2013.

Per the scope of services prepared for this reanalysis, the CORSIM and SYNCHRO files previously used in the PD&E and IMR analysis developed by Metric Engineering and hereafter referred to as the 'original' models, were used as a basis for the simulation of the modified alternative. The reanalysis follows to the extent possible, guidelines promulgated in the FDOT CORSIM Handbook Draft July 2010 version, FHWA Traffic Analysis Toolbox - Volume IV: Guidelines for Applying CORSIM Microsimulation Modeling Software and the Highway Capacity Manual – 2000 Update (2000 HCM). Consistent with the original IMR, future conditions were analyzed for years, 2020, 2030 and 2040. The following items were reviewed or evaluated in the reanalysis:

- Review of No-Build and Design Alternatives
- Model Calibration
- Traffic Operational Analysis
- Conclusion

Based on the reanalysis, the modified alternative is projected to improve traffic operations on I-395 through the future years particularly on segments with the additional lanes. The remainder of this Memorandum provides the details of the review and reanalysis.

Figure 1 on the next page, shows the project area.

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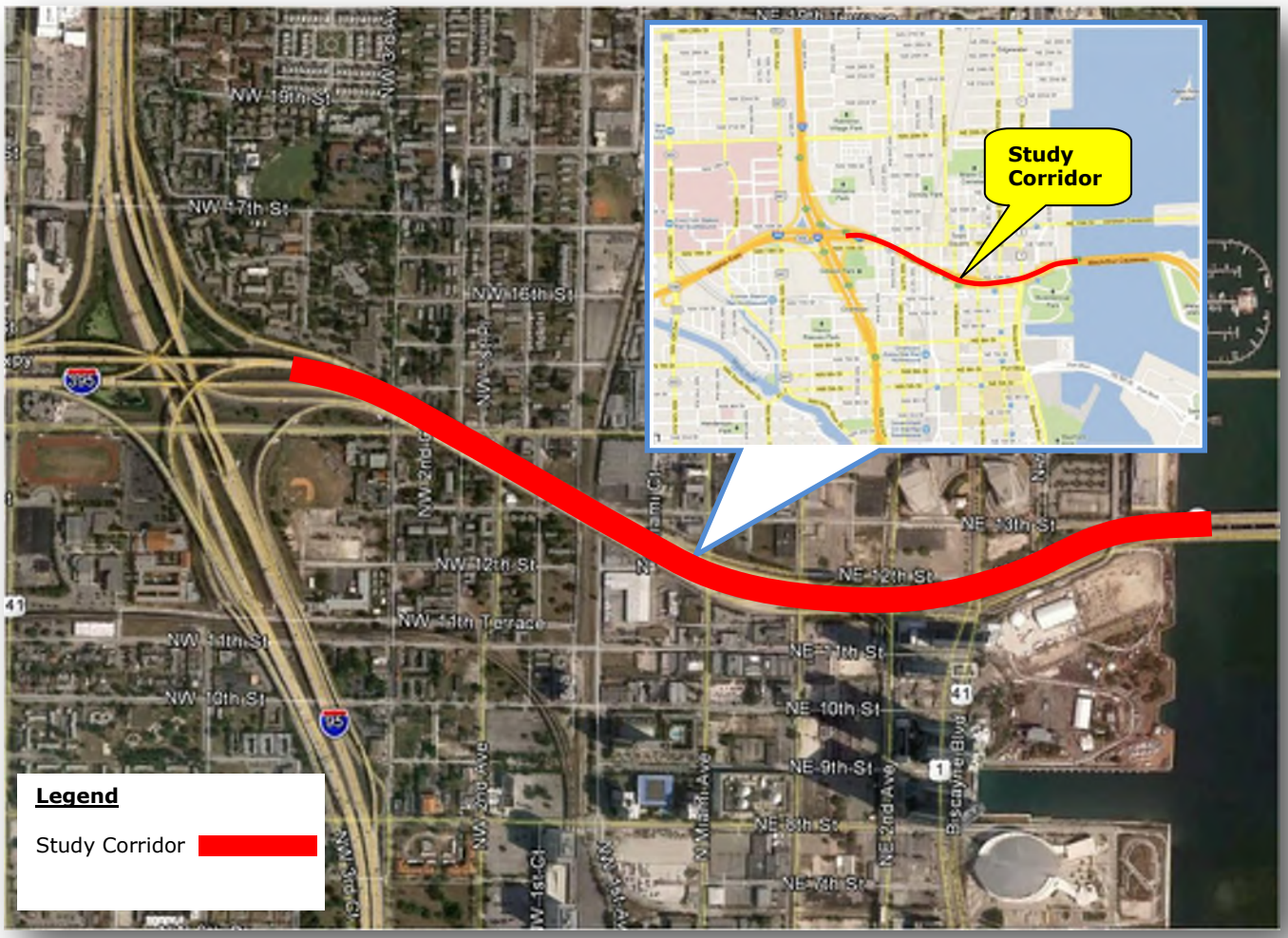
Figure 1: Study Location Map.



Source: Google Maps

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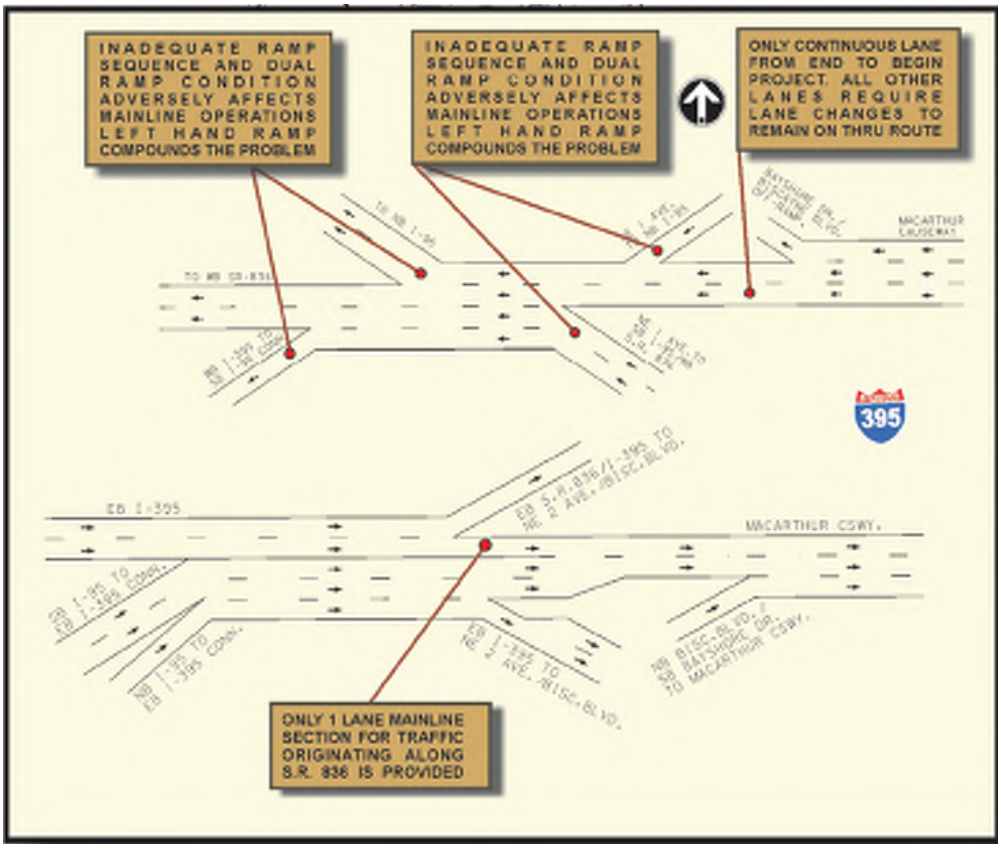
2.0 REVIEW OF NO-BUILD AND DESIGN ALTERNATIVES

Figure 2A shows the lane schematic for the No-Build condition with a description of existing deficiencies as presented in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* prepared by Metric Engineering, Inc.

Figure 2A: Lane Schematic - No-Build

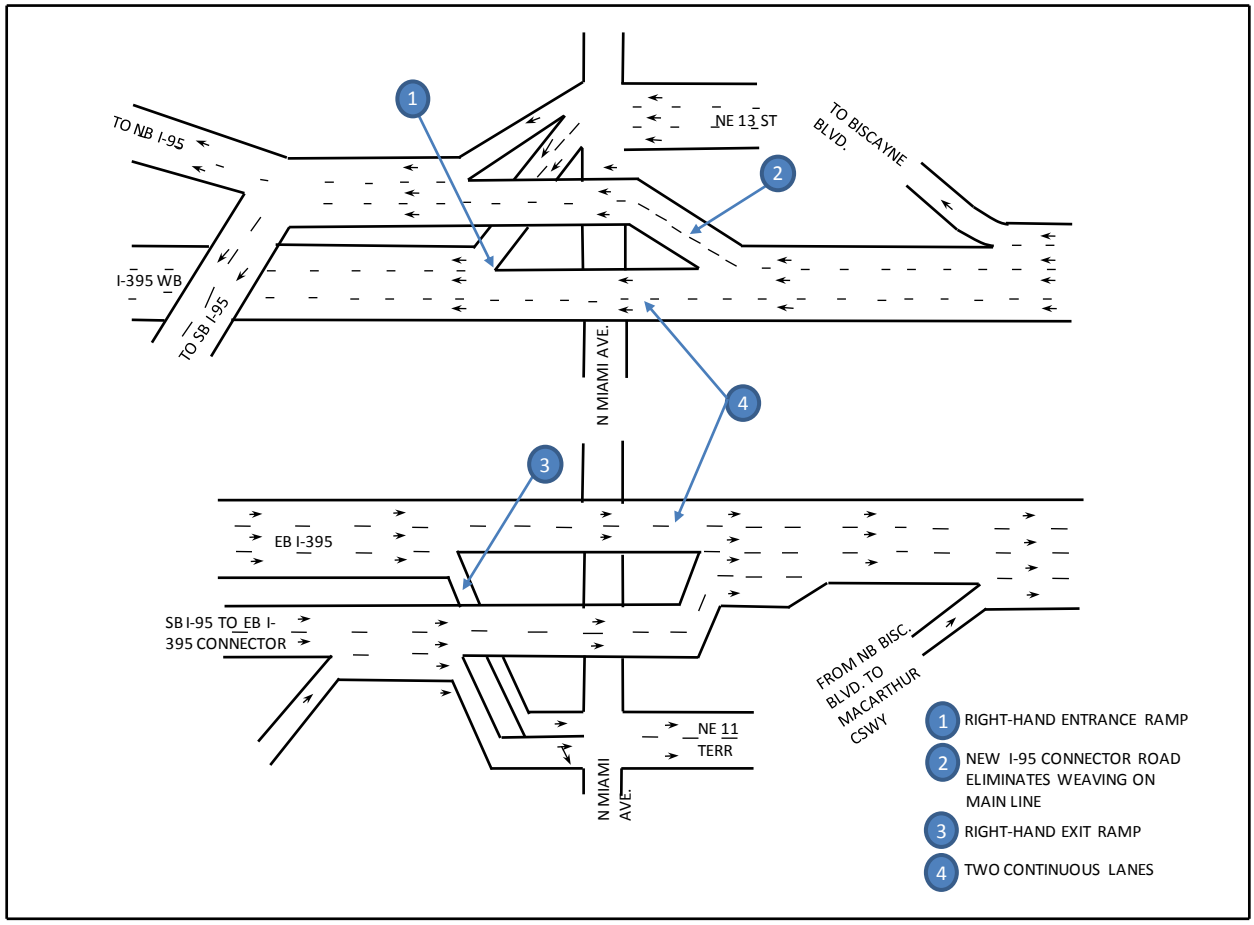


Source: I-395 PD & E Study- IMR, July 2009

Figure 2B (on the next page) shows the lane schematic for the recommended alternative (in the record of decision) as presented in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009*. The recommended alternative is described as follows:

- The I-395 mainline will be expanded to three-lanes in each direction except for the segment illustrated by number 4 where there will be two continuous lanes.
- Entrance and exit ramps will be located at N Miami Avenue
- New collector-distributor road will link WB I-395 traffic and both NB and SB I-95 traffic. The proposed alternative provides all right-hand exit and entrance ramps making this design consistent with driver expectancy with an anticipated benefit of improved safety. The proposed right hand entrance and exit ramps improves upon the existing left-hand ramps at NE 1st Ave and NE 2nd Avenue which was cited as a safety deficiency in the IMR and PD& E reports.

Figure 2B: Lane Schematic – Recommended Alternative (ROD)

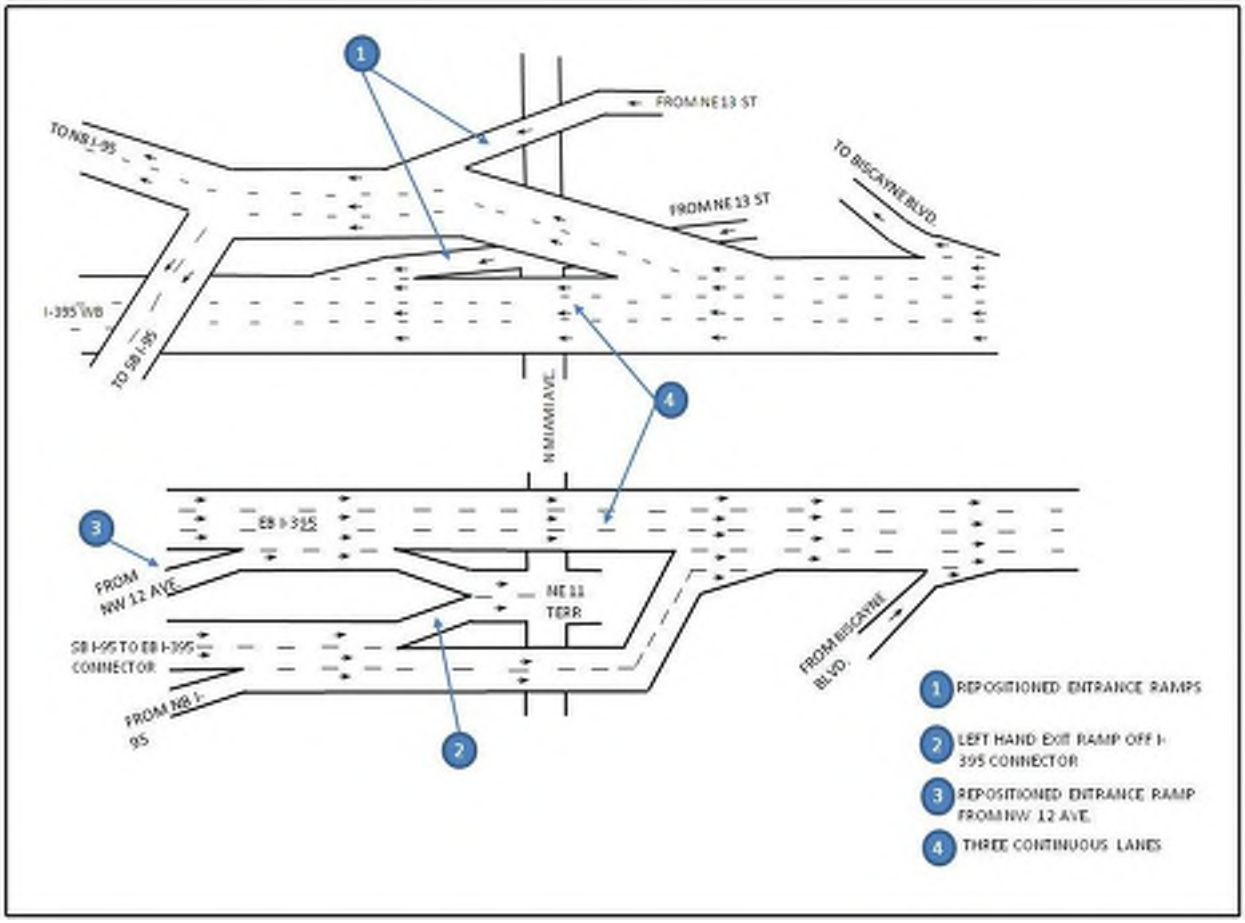


Source: Adapted from I-395 PD & E Study- IMR, July 2009

Figure 2C (on the next page) shows the lane schematic the modified recommended alternative 3. The recommended alternative is described as follows

- The segment of the I-395 mainline previously designated by number 4 will be further expanded to three-lanes in each direction.
- The entrance ramps will be relocated to begin at NE 1st Avenue and the exit ramps proposed at North Miami Avenue will be repositioned/realigned as shown in **Figure 2C**.
- Inclusion of the repositioned on-ramp from NW 12th Avenue to eastbound I-395.

Figure 2C: Lane Schematic – Modified Recommended Alternative



The lane schematic depicted in **Figure 2C** is based on the concept design provided by BCC as of February 2013 and is depicted in **Appendix 'A'.** The recommended alternative was modified for the following reasons:

- The addition of an auxiliary lane in each direction between NE 2nd Avenue and Biscayne Boulevard. Ramps provides for three (3) lanes in each direction connecting SR 836 on the east and the MacArthur Causeway on the west. With the addition of the Port of Miami Tunnel portals on the inside, this provides for two (2) continuous lanes in each direction for vehicles without requiring a lane change. The inside lanes along I-395 will be primarily used by inbound/outbound port traffic (primarily buses and trucks). Finally, I-395 is subjected to high special event traffic, more than 200 events per year. The additional inside through lane allows for the continuous flow of thru traffic from SR 836 to MacArthur and vice-versa thereby maintaining mainline flow, during periods of relatively slower moving ramp traffic near the ramps and in the outside lane, which is an inevitable circumstance.

- Additional modifications were made to the geometry, in order to minimize the number of design exceptions and variations associated with the recommended alternative. These changes also include modifications to address the constructability

requirements and to the extent possible maintain the level of service of the traffic operations during construction. It should be noted that these changes are only geometric in nature and do not affect the traffic operations or level of service of the modified alternative.

None of the modifications made to the recommended alternative were based on cost savings. It should be noted that the exit ramp to N Miami Avenue from the eastbound connector was relocated to the left hand side to minimize weaving based on the assumption that the majority of traffic exiting onto N Miami Avenue will be from southbound I-95. With this configuration, the southbound I-95 to eastbound I-395 would not have to weave with a left hand exit from the connector ramp. Furthermore, the left hand configuration avoids substandard curves and possible sight distance obstructions to tie in the connector exit ramp and the mainline exit ramp at N. Miami Avenue avoiding similar issues that occurred with the recommended alternative in the Record of Decision.

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3.0 REVIEW OF DESIGN EXCEPTIONS

The modified recommended alternative will require nine (9) design exceptions in order to minimize the amount of reconstruction necessary to the tie-in points at the begin and end project termini. Following is a summary of the exceptions:

Begin Project – Mid Town Interchange:

- There are four (4) exceptions associated with maintaining the existing vertical clearance for structures located at the I-95/I-395 Interchange. These clearances are existing and can only be corrected by reconstructing the full interchange.
- There is one (1) exception associated with grade. The grade of the existing WB I-395 traversing the I-95/I-395 Interchange exceeds AASHTO requirements. The new structure will be tying in to an existing structure and any attempts to correct the grade would trigger a domino effect requiring significant reconstruction of the interchange.

End Project – MacArthur Causeway:

- There are four (4) exceptions related to matching the existing horizontal and vertical curves approaching the MacArthur Causeway. The primary reason is that the design speed for the MacArthur Causeway is 50 MPH and the design speed for I-395 is 60 MPH. There are 2 exceptions associated with superelevation for the EB and WB I-395 tying into an existing curve. There are also two (2) exceptions associated with EB and WB I-395 in order to tie-in to an existing sag curve approaching the MacArthur Causeway underneath the Miami-Dade Transit Metromover.

A more expansive discussion of the design exceptions has been prepared by BCC Engineering in a separate document that is accompanying the design plan submittal under separate cover.

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4.0 OPERATIONAL ANALYSES

Operational analyses were performed for the freeway and ramp segments of the I-395 corridor as well as the urban signalized intersections adjacent to the I-395 corridor. The analysis of the freeway and ramp segments were performed using the CORSIM Microsimulation Computer Model developed and maintained by the Federal Highway Administration (FHWA). The analysis of the adjacent urban signalized intersections was conducted using the SYNCHRO Traffic Software which is based on methodology promulgated in the *Highway Capacity Manual*.

4.1 CORSIM MODEL CALIBRATION AND VALIDATION

According to the IMR analysis, the existing CORSIM model was calibrated to 2004 existing conditions. Based on the limited scope of this reanalysis, the calibration of the existing CORSIM model that was performed in the original IMR analysis will continue to be relied upon in the analysis of this new alternative. **Appendix 'B'** presents an excerpt of the model calibration from the original analysis contained in the *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009*.

4.2 CORSIM MODEL CHANGES

The CORSIM analyses presented in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009,* focused on one peak period for future conditions. The peak period CORSIM files prepared by Metric Engineering as part of the PD&E study corresponded to the following scenarios:

- 2020
  - No Build
  - Build (Record of Decision)
- 2030
  - No Build
  - Build (Record of Decision)
- 2040
  - No Build
  - Build (Record of Decision)

The CORSIM models for the new alternative for all three years was developed by making changes to the roadway network as coded in the "N3RMI20Model_1.TRF", "N3RMI30Model_1.TRF" and "N3RMI40Model_1.TRF" CORSIM files respectively originally prepared by Metric Engineering for the alternative recommended in the record of decision in the July 2009 IMR. It should be noted that no changes have been made to the input volumes and assumptions originally made relative to Port of Miami traffic on I-395 remain the same based on recent information received from the Port of Miami confirming those assumptions. Consequently, the same future traffic volumes and input parameters were used in the reanalysis as originally documented in the IMR and PD&E studies.

As previously noted, the changes made to the roadway network are based on the concept design developed by BCC as of February 2013 for the modified alternative as presented in **Appendix 'A'**. Following is a brief summary of the changes that have been made which

are depicted in the link-node diagram (see **Appendix 'C'**) and lane schematics as previously illustrated in **Figure 2C**:

1. Westbound on-ramp to the I-95 northbound/southbound connector has been reconfigured as follows:
    a. Removed intersection at Node 5 representing the ramp intersection with North Miami Avenue. Relocated ramp connection point to the I-95 connector from Node 691 to Node 101 to reflect approximate location of new on-ramp connection point
2. Westbound on-ramp to the I-395 westbound has been reconfigured as follows:
    a. Relocated start point of on-ramp from Node 239 to a new Node 15 (which split the link on NE 13th Street between Node 85 and Node 11). Node 15 represented the new start point of the on-ramp on NE 13th Street just east of the intersection with NE 1st Avenue.
    b. Inserted new Node 89 on NE 1st Avenue just south of NE 13th Street representing the intersection of the realigned on-ramp with NE 1st Avenue.
    c. Extended on-ramp to intersect with North Miami Avenue at Node 2 representing the ramp intersection with North Miami Avenue.
3. Eastbound off-ramps to North Miami Avenue have been relocated and repositioned.
    a. Realigned link between Node 145 to Node 72 to reflect change in distance between the merge points of the eastbound off-ramps from the I-95 connector, I-395 mainline eastbound and the intersection with North Miami Avenue.
4. Additional eastbound mainline lane:
    a. Added additional eastbound mainline lane from the N Miami Avenue off-ramp at node 611 to the merge point with the eastbound I-95/I-395 connector at node 639.
5. Repositioned NW 12th Avenue eastbound on-ramp from node 537 on the eastbound mainline I-395 to the downstream node 586.
6. Additional westbound mainline lane:
    a. Added additional westbound mainline lane from the diverge point from the westbound I-95/I-395 connector at Node 50 to the N Miami on-ramp at node 107.
7. Modified alignment of I-395 westbound to I-95 southbound off-ramp (by adjusting coordinates of Nodes along the ramp) and relocated connection point from Node 146 to Node 158 to reflect the new alignment of this ramp as proposed in the modified alternative.

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4.3 MEASURES OF EFFECTIVENESS (MOE) USED IN CORSIM ANALYSIS

Per the *FHWA Traffic Analysis Toolbox - Volume IV: Guidelines for Applying CORSIM Microsimulation Modeling Software*, the primary MOEs used for evaluating the freeway operations were:

- *Mainline average density* - expressed in vehicles per mile per lane. As density increases, freeway operations deteriorate, freedom to maneuver is more restricted, and operations become volatile and sensitive to any disruption, such as a lane change or entering ramp traffic.

- *Mainline average speed* – expressed miles per hour. The average vehicle speed was tabulated for each freeway segment over the analysis period, which serves as an indicator of the amount of congestion on the mainline.

According to primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*, freeway mainline speeds of less 45 MPH is unacceptable and average link speeds of less than 35 MPH on consecutive links is indicative of queuing. In addition, the freeway performance criteria describe the freeway density ranges as follows:

- < 35 veh/mi/ln Desirable
- 35 < 43 veh/mi/ln Acceptable
- 43 < 50 veh/mi/ln Unacceptable (poor)
- 50 < 60 veh/mi/ln Unacceptable (very poor)
- > 60 veh/mi/ln Unacceptable (gridlock)

In addition, **Table 1**, presents a summary of the Freeway Level of Service (LOS) criteria and the associated density ranges contained in the 2000 Highway Capacity Manual (HCM).

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Table 1: Freeway Measures of Effectiveness (MOEs)

Level of Service (LOS)	Description	Density (veh/mi/ln)
A	Free flow operations where free flow speeds and operating speeds are the same. Vehicles are unimpeded in their ability to maneuver.	≤ 11
B	Free flow speeds are generally maintained. Vehicle's ability to maneuver is only slightly restricted.	11 ≤ 18
C	Free flow speeds are generally maintained. Freedom to maneuver is noticeably restricted. Queues may be expected to form behind any significant blockage.	18 ≤ 26
D	Speeds begin to decline with increased traffic. Freedom to maneuver is more noticeably restricted. Queues can be expected to form behind any minor incident.	26 ≤ 35
E	The lower boundary of LOS E is considered at capacity. Operations are very volatile with extremely limited room to maneuver. Any disruption such as lane changing or vehicle entering from a ramp can cause a breakdown and extensive queuing.	35 ≤ 45
F	Total breakdown in vehicular flow. Traffic is under stop and go conditions.	> 45

Source: Highway Capacity Manual

The criteria noted herein were collectively used to assess the future performance of I-395 for the alternatives reviewed in the reanalysis of I-395.

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4.4 CORSIM TRAFFIC OPERATIONAL ANALYSIS

In accordance with guidelines contained within the *Draft – FDOT CORSIM Handbook – July 2010* and the *FHWA Traffic Analysis Toolbox Volume IV: Guidelines for Applying CORSIM Microsimulation Modeling Software – January 2007* , for the modified alternative, multiple model runs using different random seed numbers were performed and averaged to provide the model output summaries (i.e. MOEs) for all three years. Five (5) CORSIM models runs were performed (using the same random seed numbers – See **Appendix 'D'**) for additional scenarios including the "No Build Alternative and the Recommended Alternative-Record of Decision in order to compare output MOEs with the modified alternative.

2020 Peak Period

Tables 2A and **2B** present a detailed summary and comparison of the 2020 peak period link based MOEs on I-395 for the eastbound and westbound directions respectively for all three scenarios. The tables were formatted according to the from/to node link nomenclature used in the CORSIM model. The MOEs include the actual demand versus simulated volumes (vehicles per hour), average speeds (miles per hour), average densities (vehicles per lane per mile) and average volume per lane (vehicles per lane per hour). As per guidance contained in the *Draft – FDOT CORSIM Handbook – July 2010*, where multiple links were used between ramps, their MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link. It is these aggregate segment statistics that are graphically represented in **Figure 3**.The CORSIM output MOE report for the 2020 Peak period is included in **Appendix 'E'**.

For the **"No-Build"** conditions the following operational findings were identified:

- In the eastbound direction, the average volume density on consecutive links between the lane drop just west of the Biscayne Boulevard on-ramp and the Biscayne Boulevard on-ramp is projected to range from 30 to 32 veh/lane/mile which comprises the highest density along the I-395 mainline in both directions. However, according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*, at less than 35 veh/lane/mile, this segment would still be operating within the desirable range.
- The northbound I-95 to I-395 eastbound ramp is projected to operate with an average density of 33 veh/lane/mile and at LOS 'D'.
- All other segments are projected to operate within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*.
- Since the projected operating speeds on all consecutive links along the I-395 mainline segments were above 35 MPH, according to the *FDOT CORSIM Handbook Draft July 2010*, excessive queuing would not be anticipated on the various freeway segments.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'C'.

For the **"Recommended Alternative (Record of Decision)"** the following operational findings were identified:

- All segments (i.e. mainline and ramps in both directions) are projected to operate

within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'C'.

For the **"Modified Recommended Alternative with Additional Lanes"** the following operational findings were identified:

- All segments (i.e. mainline and ramps in both directions) are projected to operate within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH. Improved traffic operations are projected in both directions for freeway segments that comprise the additional lanes.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'C'.

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Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 2A
2020 Peak Period - Eastbound
Freeway Measures of Effectivness

NO BUILD — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	524	2,316	2,315	-1	63	18	1,158						
			538	586	457	2,315	2,315	0	63	19	1,157	3,331	62	19	1157	2314	C
			586	587	543	2,315	2,316	1	63	18	1,158						
			587	588	506	2,316	2,314	-2	62	19	1,158						
			588	611	449	2,314	2,314	0	61	19	1,157						
			611	612	345	2,314	2,313	-1	61	19	1,157						
		NE 2nd. Ave. Off Ramp	612	610	507	2,313	2,313	0	58	20	1,157						
	NE 2nd. Ave. Off Ramp		610	636	486	1,444	1,443	-1	60	24	1,444	1,756	60	24	1443	1443	C
			636	255	344	1,443	1,442	-1	60	24	1,443						
			255	104	451	1,442	1,443	1	60	24	1,443						
		EB I-395 Connector (Merge)	104	221	475	1,443	1,443	0	60	24	1,443						
	EB I-395 C	Lane Drop	221	258	712	3,564	3,562	-2	52	24	1,254	712	52	24	1254	3562	C
	Lane Drop		258	614	257	3,562	3,562	0	56	32	1,781						
			614	644	339	3,562	3,563	1	58	31	1,781	1,299	59	31	1782	3563	D
		Biscayne Blvd. On-Ramp	644	645	703	3,563	3,564	1	60	30	1,782						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,384	4,386	2	60	24	1,463	2,435	60	24	1463	4386	C
EB I-95/I-395 Connector																	
	I-95		581	582	284	1,769	1,769	0	45	20	885	1,156	52	17	884	1769	B
			582	213	435	1,769	1,768	-1	49	18	884						
		NB I-95 On-Ramp	213	212	437	1,768	1,769	1	59	15	884						
	NB I-95		212	214	283	3,150	3,149	-1	53	20	1,050	2,284	60	18	1049	3145	B
			214	215	496	3,149	3,148	-1	59	18	1,050						
			215	216	675	3,148	3,146	-2	61	17	1,049						
		NE 2nd. Ave. Off Ramp	216	217	830	3,146	3,142	-4	62	17	1,048						
	N Miami Ave. Off Ramp		217	218	180	2,119	2,119	0	62	17	1,060	1,518	55	20	1060	2121	C
			218	22	235	2,119	2,121	2	62	17	1,060						
			22	257	213	2,121	2,121	0	62	17	1,060						
			257	639	385	2,121	2,120	-1	57	19	1,060						
		EB I-395 Mainline (Merge)	639	221	505	2,120	2,121	1	44	24	1,060						
NB I-95 On-Ramp																	
	I-95		203	209	487	1,380	1,380	0	40	34	1,381	1,213	41	33	1381	1381	D
			209	210	278	1,380	1,381	1	41	33	1,381						
		EB I-395 Connector	210	212	448	1,381	1,381	0	42	33	1,381						
NE 2nd Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		610	21	301	869	870	1	43	20	869	1,182	39	22	870	871	C
			21	39	470	870	871	1	42	21	870						
		NE 2nd Ave	39	42	411	871	872	1	34	26	872						
NE 2nd Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		217	222	169	1,023	1,023	0	60	17	1,023	493	55	19	1024	1024	C
		NE 2nd Ave	222	51	324	1,023	1,025	2	52	20	1,024						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		253	651	167	819	819	0	42	19	819	529	42	19	819	820	C
		EB I-395 Mainline	651	645	362	819	820	1	42	19	819						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	2,296	2,295	-1	63	12	765						
			538	586	457	2,295	2,293	-2	63	12	765						
			586	587	543	2,293	2,292	-1	63	12	764	2,455	63	12	764	2293	B
			587	588	506	2,292	2,293	1	63	12	764						
		N Miami Ave. Off Ramp	588	611	449	2,293	2,293	0	61	13	764						
	N Miami Ave. Off Ramp		611	612	362	1,474	1,475	1	63	12	737						
			612	610	343	1,475	1,475	0	63	12	738						
			610	636	577	1,475	1,475	0	63	12	737	1,712	63	12	737	1476	B
		EB I-395 Connector (Merge)	636	639	430	1,475	1,477	2	63	12	738						
	EB I-395 Connector (Merge)		639	221	859	3,243	3,242	-1	56	14	815	1,521	59	16	931	3242	B
		Lane Drop	221	614	662	3,242	3,243	1	62	18	1,081						
	Lane Drop		614	644	632	3,243	3,242	-1	63	17	1,081	1,335	62	17	1081	3244	B
		Biscayne Blvd. On-Ramp	644	645	703	3,242	3,245	3	62	17	1,081						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	3,875	3,877	2	62	16	970	2,435	62	16	970	3877	B
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,431	1,431	0	51	14	716						
			582	199	185	1,431	1,431	0	47	15	715						
			199	663	289	1,431	1,432	1	45	16	716	1,149	50	14	716	1431	B
		NB I-95 On-Ramp	663	584	372	1,432	1,431	-1	55	13	716						
	NB I-95		584	585	347	2,373	2,373	0	59	13	791	1,182	60	13	791	2373	B
			585	620	445	2,373	2,373	0	61	13	791						
		N Miami Ave. Off Ramp	620	545	390	2,373	2,373	0	61	13	791						
	N Miami Ave. Off Ramp		545	51	654	1,766	1,766	0	62	14	883						
			51	650	395	1,766	1,766	0	63	14	883	1,680	59	15	883	1766	B
			650	22	251	1,766	1,766	0	60	15	883						
		EB I-395 Mainline (Merge)	22	639	380	1,766	1,767	1	49	18	883						
NB I-95 On-Ramp																	
	I-95		207	209	190	942	942	0	45	21	942						
			209	583	573	942	942	0	41	23	942	1,211	44	22	942	942	C
		EB I-395 Connector	583	584	448	942	941	-1	47	20	942						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	818	819	1	44	18	819	714	43	19	818	818	C
		N Miami Ave	156	7010	386	819	818	-1	42	19	818						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	303	607	608	1	58	10	607	702	52	12	608	608	B
			59	192	241	608	608	0	50	12	608						
		N Miami Ave	192	7007	158	608	608	0	45	14	608						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	633	631	-2	43	15	632	600	43	15	631	630	B
		EB I-395 Mainline	651	645	349	631	630	-1	43	15	631						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	1,805	1,806	1	64	9	602						
		NW 12 Ave On-Ramp	538	586	457	1,806	1,807	1	64	9	602	957	64	9	602	1806	A
	NW 12 Ave On-Ramp		586	587	543	2,334	2,336	2	60	10	584						
			587	588	506	2,336	2,336	0	62	9	584	1,498	61	10	584	2336	A
		N Miami Ave. Off Ramp	588	611	449	2,336	2,336	0	60	10	584						
	N Miami Ave. Off Ramp		611	612	362	1,458	1,458	0	64	8	486						
			612	610	343	1,458	1,458	0	64	8	486						
			610	636	577	1,458	1,458	0	64	8	486	2,267	64	8	486	1458	A
		EB I-395 Connector (Merge)	636	639	985	1,458	1,459	1	64	8	486						
	EB I-395 Connector (Merge)		639	221	302	3,207	3,207	0	42	17	701						
			221	614	662	3,207	3,206	-1	56	14	802						
			614	644	632	3,206	3,207	1	62	13	801	2,299	58	14	788	3206	B
		Biscayne Blvd. On-Ramp	644	645	703	3,207	3,204	-3	63	13	801						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	3,828	3,833	5	62	14	885	2,435	62	14	885	3833	B
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,419	1,419	0	51	14	710						
			582	199	185	1,419	1,418	-1	47	15	709	1,149	50	14	710	1419	B
			199	663	289	1,418	1,419	1	45	16	709						
		NB I-95 On-Ramp	663	584	372	1,419	1,419	0	55	13	710						
	NB I-95		584	585	347	2,374	2,373	-1	59	13	791						
			585	620	332	2,373	2,373	0	61	13	791	967	59	13	791	2373	B
		N Miami Ave. Off Ramp	620	545	288	2,373	2,373	0	57	14	791						
	N Miami Ave. Off Ramp		545	51	1,254	1,748	1,748	0	62	14	874						
			51	650	270	1,748	1,748	0	63	14	874	2,512	57	16	874	1748	B
			650	22	424	1,748	1,748	0	57	15	874						
		EB I-395 Mainline (Merge)	22	639	564	1,748	1,748	0	43	20	874						
NB I-95 On-Ramp																	
	I-95		207	209	190	956	956	0	44	21	956						
			209	583	573	956	956	0	41	23	956	1,211	44	22	956	956	C
		EB I-395 Connector	583	584	448	956	955	-1	47	20	955						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	878	878	0	44	20	878	328	43	20	878	878	C
		N Miami Ave	156	7010	242	878	878	0	42	21	878						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	239	625	624	-1	57	11	625	751	51	12	625	624	B
			59	192	247	624	624	0	51	12	624						
		N Miami Ave	192	7007	265	624	625	1	45	14	625						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	624	623	-1	43	14	624	600	43	15	624	624	B
		EB I-395 Mainline	651	645	349	623	624	1	43	15	624						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 2B
2020 Peak Period - Westbound
Freeway Measures of Effectivness

NO BUILD — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	4,160	4,159	-1	63	22	1,400	2,568	62	22	1397	4160	C
		Biscayne Blvd. Off-Ramp	647	638	645	4,159	4,161	2	59	23	1,387						
	Biscayne Blvd. Off-Ramp		638	97	599	3,188	3,187	-1	62	26	1,594	3,477	61	26	1595	3190	C
			97	637	338	3,187	3,187	0	62	26	1,594						
			637	629	580	3,187	3,189	2	62	26	1,594						
			629	50	536	3,189	3,191	2	61	26	1,595						
			50	628	605	3,191	3,191	0	61	26	1,596						
			628	626	373	3,191	3,192	1	61	26	1,596						
		NE 1st Ave. On-Ramp (east)	626	627	446	3,192	3,191	-1	61	26	1,595						
	NE 1st Ave. On-Ramp (east)	NE 1st Ave. On-Ramp (west)	627	106	383	4,101	4,100	-1	58	23	1,367	383	58	23	1367	4100	C
	NE 1st Ave. On-Ramp (west)		106	107	405	4,874	4,878	4	60	20	1,219	1,534	60	20	1219	4875	C
			107	590	559	4,878	4,876	-2	61	20	1,219						
		NB I-95 Off-Ramp	590	591	570	4,876	4,872	-4	58	21	1,219						
	NB I-95 Off-Ramp	SB I-95 Off-Ramp	591	569	826	3,045	3,046	1	60	17	1,015	826	60	17	1015	3046	B
	SB I-95 Off-Ramp	SR 836	569	544	965	2,201	2,198	-3	62	18	1,100	965	62	18	1100	2198	B
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	334	973	973	0	42	23	973	534	42	23	973	973	C
		Biscayne Blvd.	738	7018	200	973	974	1	42	23	974						
NE 1st Ave. On-Ramp (east) (Ramp E)																	
	NE 1st Ave.		219	262	296	913	911	-2	32	12	382	515	37	16	607	911	B
		WB I-395	262	627	219	911	910	-1	43	21	910						
NE 1st Ave. On-Ramp (west) (Ramp F)																	
	NE 1st Ave.		101	150	276	774	774	0	43	18	775	704	46	17	774	774	B
		WB I-395	150	106	428	774	774	0	48	16	774						
NB I-95 Off-Ramp																	
	WB I-395		591	182	329	1,828	1,826	-2	43	21	913	734	44	17	745	1825	B
		I-95	182	188	405	1,826	1,825	-1	44	14	609						
SB I-95 Off-Ramp																	
	WB I-395		569	114	167	845	845	0	53	16	845	652	49	17	845	845	B
			114	189	242	845	845	0	50	17	845						
		I-95	189	205	243	845	844	-1	45	19	845						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	3,964	3,964	0	63	16	1,000	2,568	62	16	998	3965	B
		Biscayne Blvd. Off-Ramp	647	638	645	3,964	3,967	3	61	16	992						
	Biscayne Blvd. Off-Ramp		638	97	599	3,173	3,174	1	62	17	1,058						
			97	637	410	3,174	3,174	0	62	17	1,058						
			637	629	545	3,174	3,175	1	62	17	1,058	2,113	61	17	1058	3175	B
		WB I-395/I-95 Connector	629	50	559	3,175	3,176	1	57	18	1,059						
	WB I-395/I-95 Connector		50	628	501	1,490	1,489	-1	62	12	745						
			628	626	388	1,489	1,490	1	63	12	745	2,409	63	12	745	1488	B
			626	627	502	1,490	1,489	-1	63	12	745						
		N Miami Ave. On-Ramp	627	107	1,018	1,489	1,487	-2	63	12	744						
	N Miami Ave. On-Ramp		107	590	332	2,547	2,548	1	55	16	849						
			590	591	455	2,548	2,550	2	60	14	849	1,760	61	14	850	2549	B
			591	592	545	2,550	2,550	0	63	13	850						
		SR 836	592	569	428	2,550	2,548	-2	63	13	850						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	1,686	1,684	-2	44	19	843						
			625	189	253	1,684	1,686	2	44	13	562						
			189	205	253	1,686	1,685	-1	44	13	562						
			205	19	399	1,685	1,685	0	44	19	842	2,250	44	18	779	1685	B
			19	101	430	1,685	1,685	0	43	19	842						
		N Miami Ave. On-Ramp	101	691	466	1,685	1,685	0	43	20	842						
	N Miami Ave. On-Ramp		691	238	482	2,554	2,554	0	43	20	851						
			238	109	501	2,554	2,553	-1	43	20	851	1,358	43	20	851	2553	C
		NB I-95 On-Ramp	109	594	375	2,553	2,553	0	43	20	851						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	795	795	0	43	19	795	548	43	19	795	795	C
		Biscayne Blvd.	738	7018	206	795	794	-1	42	19	795						
N Miami Ave. On-Ramp (Ramp F)																	
	N Miami Ave.		7004	198	192	870	870	0	38	25	953	396	41	22	910	869	C
		WB I-395/I-95 Connector	198	691	204	870	869	-1	43	20	870						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	276	1,063	1,061	-2	33	17	566	540	35	17	597	1061	B
		WB I-395	106	107	264	1,061	1,060	-1	37	17	630						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	750	1,687	1,688	1	44	19	844	1,030	44	19	844	1688	C
		I-95	76	539	280	1,688	1,688	0	43	19	844						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	474	866	867	1	38	12	435						
			114	115	425	867	867	0	38	23	866	1,296	38	19	709	867	C
			115	574	188	867	867	0	38	23	867						
		I-95	574	146	209	867	867	0	38	23	867						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — WESTBOUND

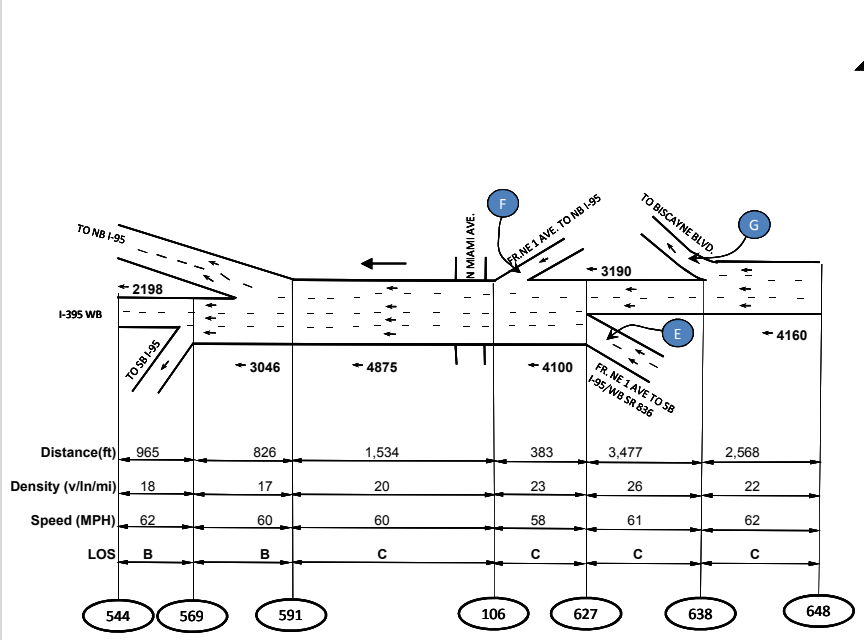
Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	3,964	3,966	2	63	16	1,001	2,568	62	16	998	3965	B
		Biscayne Blvd. Off-Ramp	647	638	645	3,966	3,963	-3	61	16	991						
	Biscayne Blvd. Off-Ramp		638	97	599	3,176	3,177	1	63	16	1,004						
			97	637	410	3,177	3,178	1	63	13	794						
			637	629	545	3,178	3,180	2	62	13	795	2,113	59	15	854	3178	B
		WB I-395/I-95 Connector	629	50	559	3,180	3,178	-2	50	16	795						
	WB I-395/I-95 Connector		50	628	501	1,507	1,507	0	60	8	502						
			628	626	388	1,507	1,506	-1	63	8	502	2,409	63	8	502	1507	A
			626	627	502	1,506	1,506	0	64	8	502						
		N Miami Ave. On-Ramp	627	107	1,018	1,506	1,508	2	64	8	502						
	N Miami Ave. On-Ramp		107	590	332	2,652	2,655	3	54	12	663						
			590	591	455	2,655	2,654	-1	58	13	725	1,760	60	13	802	2656	B
			591	592	545	2,654	2,656	2	62	14	885						
		SR 836	592	569	428	2,656	2,657	1	63	14	885						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	1,670	1,669	-1	43	19	835						
			625	189	253	1,669	1,668	-1	44	13	556						
			189	205	253	1,668	1,669	1	44	13	556	1,784	44	17	756	1669	B
			205	19	399	1,669	1,670	1	44	19	835						
		NE 1st Ave. On-Ramp	19	101	430	1,670	1,670	0	43	19	835						
	NE 1st Ave. On-Ramp		101	691	466	2,539	2,539	0	43	19	846						
			691	238	339	2,539	2,540	1	44	19	846						
			238	109	357	2,540	2,538	-2	44	19	846	1,641	43	19	846	2538	C
		NB I-95 On-Ramp	109	594	479	2,538	2,536	-2	43	20	846						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	787	787	0	43	18	787	548	43	18	787	787	B
		Biscayne Blvd.	738	7018	206	787	787	0	43	18	787						
NE 1st Ave. On-Ramp (Ramp F)																	
	NE 1st Ave.		7004	198	212	869	869	0	38	25	944	556	41	22	898	870	C
		WB I-395/I-95 Connector	198	101	344	869	870	1	43	20	870						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	234	1,147	1,145	-2	35	18	618	545	37	19	679	1145	C
		WB I-395	106	107	311	1,145	1,145	0	39	19	725						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	931	1,678	1,683	5	44	19	840	1,211	44	19	840	1683	C
		I-95	76	539	280	1,683	1,684	1	44	19	842						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	299	858	860	2	39	11	430						
			114	115	386	860	859	-1	38	11	430	1,529	38	14	531	860	B
			115	574	502	859	860	1	37	12	444						
		I-95	574	158	342	860	861	1	37	23	861						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

FIGURE 4
I-395 FREEWAY LANE SCHEMATICS & AGGREGATE STATISTICS
2020 PEAK PERIOD

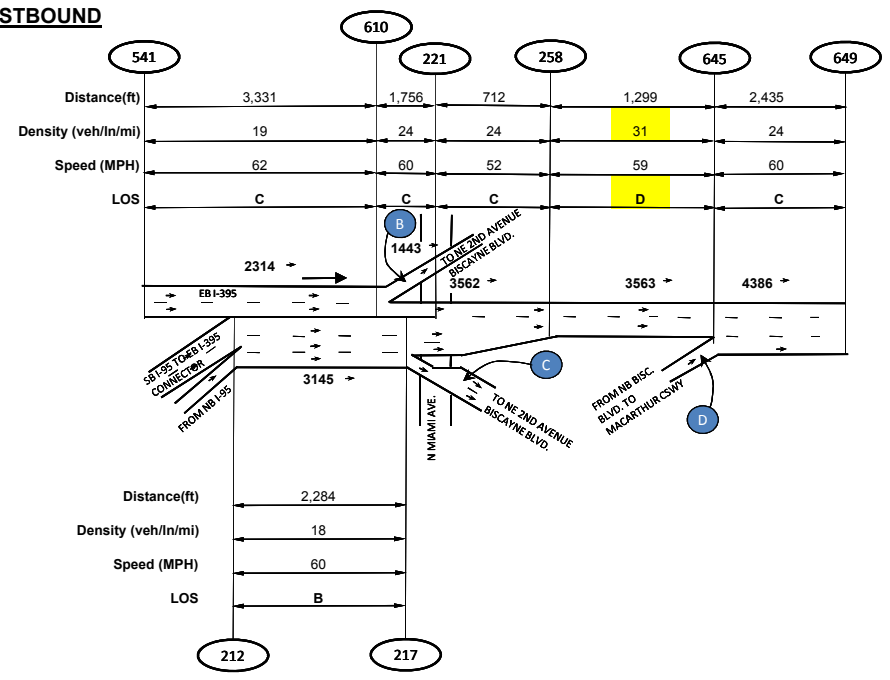
NO BUILD

WESTBOUND



Ramp	Density	Speed	LOS
E	16	37	B
F	17	46	B
G	23	42	C

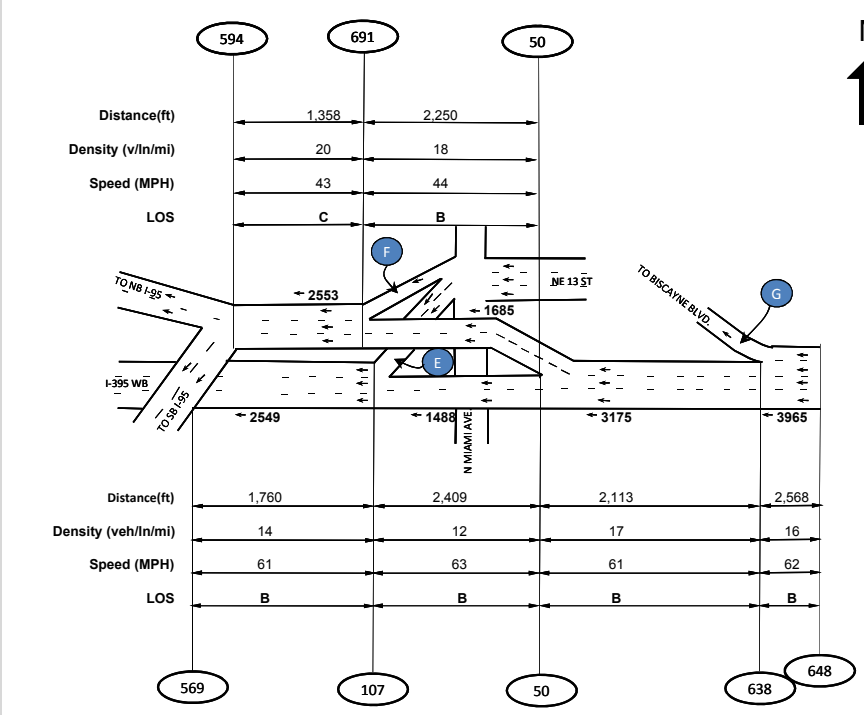
EASTBOUND



Ramp	Density	Speed	LOS
B	22	39	C
C	19	55	C
D	19	42	C

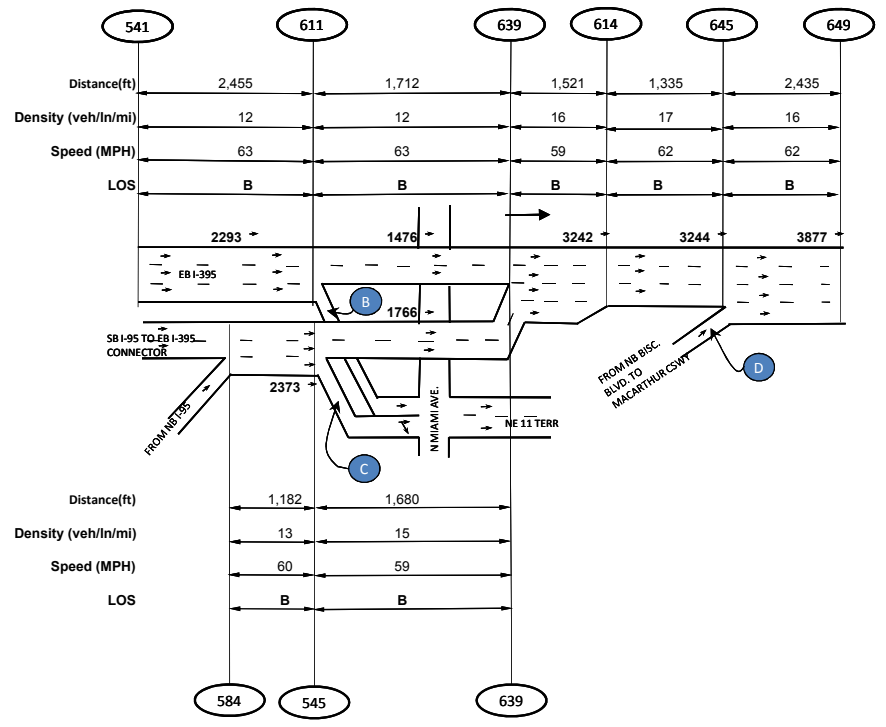
RECOMMENDED ALTERNATIVE (RECORD OF DECISION)

WESTBOUND



Ramp	Density	Speed	LOS
E	17	35	B
F	22	41	C
G	19	43	C

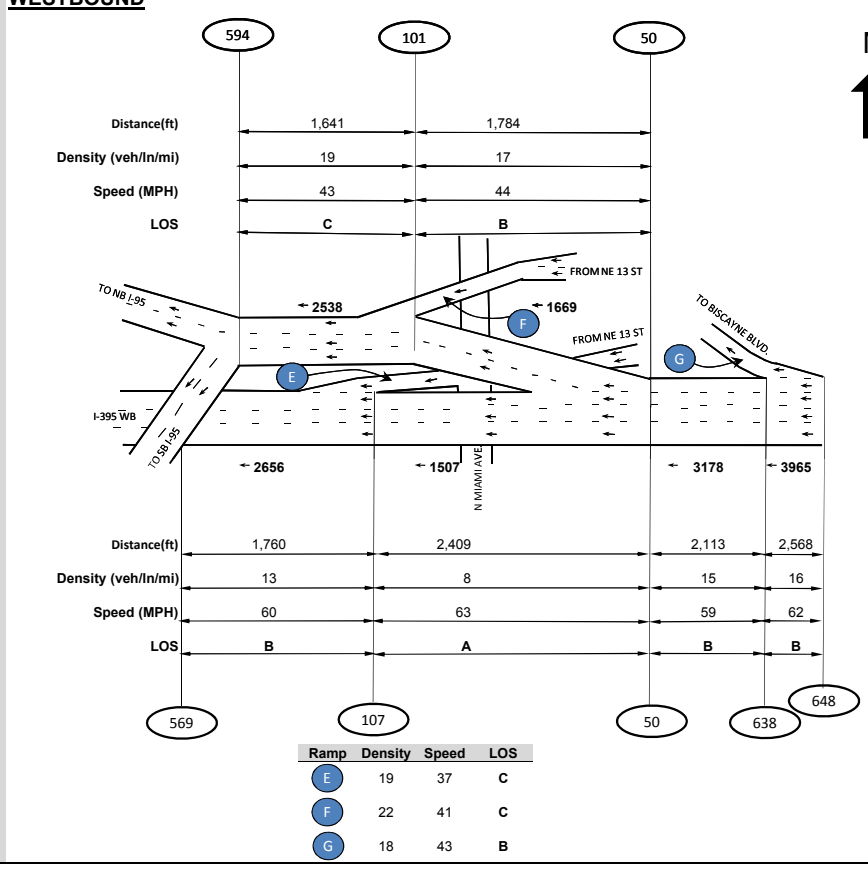
EASTBOUND



Ramp	Density	Speed	LOS
B	19	43	C
C	12	52	B
D	15	43	B

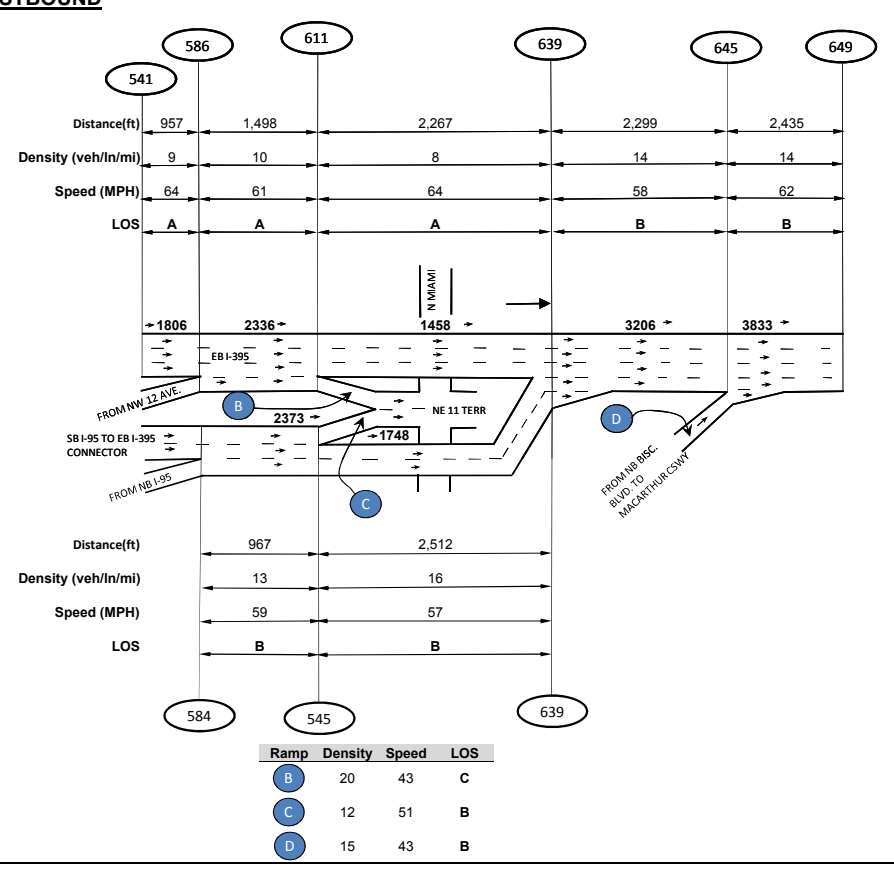
MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

WESTBOUND



Ramp	Density	Speed	LOS
E	19	37	C
F	22	41	C
G	18	43	B

EASTBOUND



Ramp	Density	Speed	LOS
B	20	43	C
C	12	51	B
D	15	43	B

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

LEGEND

LOS	Density (veh/ln/mi)
A	≤ 11
B	11 ≤ 18
C	18 ≤ 26
D	26 ≤ 35
E	35 ≤ 45
F	> 45

B Ramp
2520 Peak Hour Volume
107 Node Number

2030 Peak Period

Tables 3A and **3B** present a detailed summary and comparison of the 2030 peak period link based MOEs on I-395 for the eastbound and westbound directions respectively for all three scenarios. The same format, nomenclature and MOEs used to define the 2020 peak period were used to define the 2030 peak period. The aggregate segment statistics are graphically represented in **Figure 4**. The CORSIM output MOE report for the 2030 Peak period is included in **Appendix 'F'**

For the **"No-Build"** conditions the following operational findings were identified:

- In the eastbound direction, the average volume density between the NE 2nd Avenue off-ramp and the MacArthur Causeway bridge, is projected to vary between 27 and 38 veh/lane/mile which comprises the highest density along the I-395 mainline in both directions. Within these limits, the highest density occurs on I-395 between the lane drop just west of the Biscayne Boulevard on-ramp and the Biscayne Boulevard on-ramp which is projected operate at over 36 veh/lane/mile. However, according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*, while not in the desirable range, this segment would still be operating within an acceptable range of between 35 and 43 veh/lane/mile.
- The northbound I-95 to I-395 eastbound ramp is projected to operate with an average density of 40 veh/lane/mile and at LOS 'E' which represents an approximately 20% increase over the projected 2020 conditions.
- All other segments are projected to operate within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*.
- Notwithstanding the higher densities as noted above, since the projected operating speeds on all consecutive links along the I-395 mainline segments were above 35 MPH, according to the *FDOT CORSIM Handbook Draft July 2010*, queuing would not be anticipated on the various freeway segments.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'D'.

For the "**Recommended Alternative (Record of Decision)"** the following operational findings were identified:

- All segments (i.e. mainline and connectors in both directions) are projected to operate within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'C'.

For the **"Modified Recommended Alternative with Additional Lanes"** the following operational findings were identified:

- All segments (i.e. mainline and ramps in both directions) are projected to operate within the desirable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH.
- Similar to the 2020 peak period, improved traffic operations are projected in both directions for freeway segments that comprise the additional lanes.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'C'.

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Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 3A
2030 Peak Period - Eastbound
Freeway Measures of Effectivness

NO BUILD — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	524	2,594	2,593	-1	62	21	1,297						
			538	586	457	2,593	2,593	0	62	21	1,297	3,331	61	21	1297	2593	C
			586	587	543	2,593	2,592	-1	62	21	1,296						
			587	588	506	2,592	2,592	0	61	21	1,296						
			588	611	449	2,592	2,593	1	60	21	1,296						
			611	612	345	2,593	2,593	0	60	22	1,297						
		NE 2nd. Ave. Off Ramp	612	610	507	2,593	2,593	0	57	23	1,297						
	NE 2nd. Ave. Off Ramp		610	636	486	1,615	1,615	0	60	27	1,615	1,756	60	27	1614	1614	D
			636	255	344	1,615	1,615	0	60	27	1,615						
			255	104	451	1,615	1,614	-1	60	27	1,614						
		EB I-395 Connector (Merge)	104	221	475	1,614	1,613	-1	60	27	1,613						
	EB I-395 C	Lane Drop	221	258	712	4,049	4,049	0	49	29	1,425	712	49	29	1425	4049	D
	Lane Drop		258	614	257	4,049	4,050	1	53	38	2,025						
			614	644	339	4,050	4,049	-1	55	37	2,025	1,299	56	36	2024	4048	E
		Biscayne Blvd. On-Ramp	644	645	703	4,049	4,047	-2	58	35	2,024						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,969	4,971	2	60	28	1,656	2,435	60	28	1656	4971	D
EB I-95/I-395 Connector																	
	I-95		581	582	284	1,976	1,976	0	45	22	988	1,156	51	19	988	1975	C
			582	213	435	1,976	1,976	0	48	20	988						
		NB I-95 On-Ramp	213	212	437	1,976	1,973	-3	59	17	987						
	NB I-95		212	214	283	3,608	3,606	-2	53	23	1,202	2,284	60	20	1202	3606	C
			214	215	496	3,606	3,604	-2	59	20	1,202						
			215	216	675	3,604	3,606	2	61	20	1,202						
		NE 2nd. Ave. Off Ramp	216	217	830	3,606	3,607	1	61	20	1,202						
	N Miami Ave. Off Ramp		217	218	180	2,438	2,438	0	61	20	1,219	1,518	54	23	1219	2437	C
			218	22	235	2,438	2,438	0	61	20	1,219						
			22	257	213	2,438	2,439	1	62	20	1,220						
			257	639	385	2,439	2,438	-1	57	21	1,219						
		EB I-395 Mainline (Merge)	639	221	505	2,438	2,435	-3	44	28	1,218						
NB I-95 On-Ramp																	
	I-95		203	209	487	1,636	1,636	0	40	41	1,636	1,213	41	40	1636	1636	E
			209	210	278	1,636	1,636	0	41	40	1,636						
		EB I-395 Connector	210	212	448	1,636	1,635	-1	42	39	1,636						
NE 2nd Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		610	21	301	978	978	0	43	23	979	1,182	38	26	978	977	C
			21	39	470	978	978	0	41	24	979						
		NE 2nd Ave	39	42	411	978	975	-3	31	31	977						
NE 2nd Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		217	222	169	1,169	1,169	0	60	20	1,169	493	54	22	1169	1168	C
		NE 2nd Ave	222	51	324	1,169	1,168	-1	51	23	1,169						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		253	651	167	922	921	-1	42	22	921	529	42	22	921	921	C
		EB I-395 Mainline	651	645	362	921	921	0	42	22	921						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	2,614	2,615	1	63	14	872						
			538	586	457	2,615	2,617	2	63	14	872						
			586	587	543	2,617	2,620	3	63	14	873	2,455	62	14	873	2618	B
			587	588	506	2,620	2,619	-1	63	14	873						
		N Miami Ave. Off Ramp	588	611	449	2,619	2,619	0	60	14	873						
	N Miami Ave. Off Ramp		611	612	362	1,677	1,677	0	63	13	838						
			612	610	343	1,677	1,676	-1	63	13	838						
			610	636	577	1,676	1,675	-1	63	13	838	1,712	63	13	838	1676	B
		EB I-395 Connector (Merge)	636	639	430	1,675	1,675	0	63	13	838						
	EB I-395 Connector (Merge)		639	221	859	3,628	3,631	3	56	16	912	1,521	58	18	1042	3631	B
		Lane Drop	221	614	662	3,631	3,630	-1	61	20	1,210						
	Lane Drop		614	644	632	3,630	3,629	-1	62	19	1,210	1,335	62	19	1210	3628	C
		Biscayne Blvd. On-Ramp	644	645	703	3,629	3,628	-1	62	19	1,210						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,356	4,357	1	62	18	1,089	2,435	62	18	1089	4357	B
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,529	1,528	-1	50	15	764						
			582	199	185	1,528	1,528	0	46	16	764						
			199	663	289	1,528	1,529	1	45	17	764	1,149	50	15	764	1529	B
		NB I-95 On-Ramp	663	584	372	1,529	1,530	1	55	14	765						
	NB I-95		584	585	347	2,643	2,642	-1	59	15	881	1,182	60	15	880	2641	B
			585	620	445	2,642	2,641	-1	61	15	880						
		N Miami Ave. Off Ramp	620	545	390	2,641	2,640	-1	60	15	880						
	N Miami Ave. Off Ramp		545	51	654	1,952	1,951	-1	62	16	976						
			51	650	395	1,951	1,952	1	62	16	976	1,680	59	17	976	1952	B
			650	22	251	1,952	1,952	0	60	16	976						
		EB I-395 Mainline (Merge)	22	639	380	1,952	1,952	0	49	20	976						
NB I-95 On-Ramp																	
	I-95		207	209	190	1,113	1,111	-2	44	25	1,112						
			209	583	573	1,111	1,113	2	41	27	1,112	1,211	44	26	1112	1113	C
		EB I-395 Connector	583	584	448	1,113	1,113	0	47	24	1,113						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	942	942	0	44	21	942	714	43	22	941	941	C
		N Miami Ave	156	7010	386	942	941	-1	42	22	941						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	303	689	689	0	58	12	689	702	52	14	689	689	B
			59	192	241	689	689	0	50	14	689						
		N Miami Ave	192	7007	158	689	689	0	44	16	689						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	728	728	0	43	17	728	600	42	17	728	728	B
		EB I-395 Mainline	651	645	349	728	728	0	42	17	728						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	2,029	2,028	-1	63	11	676						
		NW 12 Ave On-Ramp	538	586	457	2,028	2,029	1	63	11	676	957	63	11	676	2028	A
	NW 12 Ave On-Ramp		586	587	543	2,552	2,553	1	60	11	638						
			587	588	506	2,553	2,555	2	62	10	638	1,498	61	11	638	2555	A
		N Miami Ave. Off Ramp	588	611	449	2,555	2,556	1	60	11	639						
	N Miami Ave. Off Ramp		611	612	362	1,586	1,587	1	64	8	529						
			612	610	343	1,587	1,587	0	64	8	529						
			610	636	577	1,587	1,588	1	64	8	529	2,267	64	8	529	1588	A
		EB I-395 Connector (Merge)	636	639	985	1,588	1,589	1	64	8	529						
	EB I-395 Connector (Merge)		639	221	302	3,532	3,533	1	40	19	773						
			221	614	662	3,533	3,538	5	55	16	884						
			614	644	632	3,538	3,537	-1	62	14	884	2,299	57	15	869	3536	B
		Biscayne Blvd. On-Ramp	644	645	703	3,537	3,535	-2	63	14	884						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,272	4,264	-8	61	16	985	2,435	61	16	985	4264	B
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,555	1,555	0	50	15	777						
			582	199	185	1,555	1,554	-1	46	17	777	1,149	50	16	777	1555	B
			199	663	289	1,554	1,554	0	45	17	777						
		NB I-95 On-Ramp	663	584	372	1,554	1,555	1	55	14	777						
	NB I-95		584	585	347	2,652	2,652	0	59	15	884						
			585	620	332	2,652	2,653	1	61	15	884	967	59	15	884	2653	B
		N Miami Ave. Off Ramp	620	545	288	2,653	2,653	0	58	15	884						
	N Miami Ave. Off Ramp		545	51	1,254	1,942	1,942	0	61	16	971						
			51	650	270	1,942	1,944	2	62	16	972	2,512	56	18	972	1943	B
			650	22	424	1,944	1,943	-1	57	17	972						
		EB I-395 Mainline (Merge)	22	639	564	1,943	1,943	0	42	23	972						
NB I-95 On-Ramp																	
	I-95		207	209	190	1,095	1,095	0	44	25	1,095						
			209	583	573	1,095	1,097	2	41	27	1,096	1,211	44	26	1096	1097	C
		EB I-395 Connector	583	584	448	1,097	1,097	0	47	24	1,097						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	970	971	1	44	22	971	328	43	22	971	971	C
		N Miami Ave	156	7010	242	971	972	1	42	23	971						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	239	711	711	0	57	12	711	751	51	14	711	710	B
			59	192	247	711	710	-1	51	14	711						
		N Miami Ave	192	7007	265	710	710	0	45	16	710						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	736	736	0	42	18	736	600	42	18	736	736	B
		EB I-395 Mainline	651	645	349	736	736	0	42	18	736						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 3B
2030 Peak Period - Westbound
Freeway Measures of Effectivness

NO BUILD — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	4,820	4,818	-2	62	26	1,622	2,568	61	26	1618	4816	C
		Biscayne Blvd. Off-Ramp	647	638	645	4,818	4,812	-6	58	27	1,605						
	Biscayne Blvd. Off-Ramp		638	97	599	3,683	3,684	1	61	30	1,842	3,477	61	30	1842	3685	D
			97	637	338	3,684	3,684	0	61	30	1,842						
			637	629	580	3,684	3,684	0	61	30	1,842						
			629	50	536	3,684	3,685	1	61	30	1,842						
			50	628	605	3,685	3,684	-1	61	30	1,842						
			628	626	373	3,684	3,687	3	60	30	1,843						
		NE 1st Ave. On-Ramp (east)	626	627	446	3,687	3,687	0	60	31	1,844						
	NE 1st Ave. On-Ramp (east)	NE 1st Ave. On-Ramp (west)	627	106	383	4,636	4,634	-2	58	27	1,545	383	58	27	1545	4634	D
	NE 1st Ave. On-Ramp (west)		106	107	405	5,440	5,443	3	59	23	1,361	1,534	59	23	1361	5444	C
			107	590	559	5,443	5,443	0	61	22	1,361						
		NB I-95 Off-Ramp	590	591	570	5,443	5,445	2	57	24	1,361						
	NB I-95 Off-Ramp	SB I-95 Off-Ramp	591	569	826	3,407	3,406	-1	60	19	1,135	826	60	19	1135	3406	C
	SB I-95 Off-Ramp	SR 836	569	544	965	2,478	2,481	3	62	20	1,240	965	62	20	1240	2481	C
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	334	1,129	1,130	1	42	27	1,130	534	42	27	1130	1130	D
		Biscayne Blvd.	738	7018	200	1,130	1,130	0	42	27	1,130						
NE 1st Ave. On-Ramp (east) (Ramp E)																	
	NE 1st Ave.		219	262	296	948	949	1	31	13	398	515	36	17	632	949	B
		WB I-395	262	627	219	949	949	0	42	23	949						
NE 1st Ave. On-Ramp (west) (Ramp F)																	
	NE 1st Ave.		101	150	276	805	806	1	43	19	805	704	46	18	806	807	B
		WB I-395	150	106	428	806	807	1	48	17	806						
NB I-95 Off-Ramp																	
	WB I-395		591	182	329	2,038	2,039	1	43	24	1,019	734	43	20	832	2038	C
		I-95	182	188	405	2,039	2,038	-1	43	16	680						
SB I-95 Off-Ramp																	
	WB I-395		569	114	167	928	928	0	52	18	928	652	48	19	928	928	C
			114	189	242	928	928	0	50	19	928						
		I-95	189	205	243	928	928	0	44	21	928						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	4,584	4,585	1	63	18	1,157	2,568	62	18	1154	4584	B
		Biscayne Blvd. Off-Ramp	647	638	645	4,585	4,583	-2	60	19	1,146						
	Biscayne Blvd. Off-Ramp		638	97	599	3,655	3,658	3	61	20	1,219						
			97	637	410	3,658	3,657	-1	61	20	1,219						
			637	629	545	3,657	3,656	-1	62	20	1,219	2,113	60	20	1219	3657	C
		WB I-395/I-95 Connector	629	50	559	3,656	3,656	0	57	21	1,219						
	WB I-395/I-95 Connector		50	628	501	1,723	1,722	-1	62	14	861						
			628	626	388	1,722	1,723	1	63	14	861	2,409	63	14	861	1722	B
			626	627	502	1,723	1,723	0	63	14	861						
		N Miami Ave. On-Ramp	627	107	1,018	1,723	1,722	-1	63	14	861						
	N Miami Ave. On-Ramp		107	590	332	2,947	2,947	0	54	18	982						
			590	591	455	2,947	2,946	-1	60	16	982	1,760	61	16	982	2945	B
			591	592	545	2,946	2,944	-2	63	16	982						
		SR 836	592	569	428	2,944	2,944	0	63	16	981						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	1,933	1,932	-1	43	22	966						
			625	189	253	1,932	1,932	0	44	15	644						
			189	205	253	1,932	1,932	0	44	15	644						
			205	19	399	1,932	1,932	0	44	22	966	2,250	43	21	894	1932	C
			19	101	430	1,932	1,933	1	43	22	966						
		N Miami Ave. On-Ramp	101	691	466	1,933	1,933	0	42	23	967						
	N Miami Ave. On-Ramp		691	238	482	2,942	2,941	-1	43	23	981						
			238	109	501	2,941	2,943	2	43	23	981	1,358	43	23	981	2942	C
		NB I-95 On-Ramp	109	594	375	2,943	2,943	0	43	23	981						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	927	926	-1	42	22	927	548	42	22	927	926	C
		Biscayne Blvd.	738	7018	206	926	927	1	42	22	927						
N Miami Ave. On-Ramp (Ramp F)																	
	N Miami Ave.		7004	198	192	1,009	1,009	0	38	29	1,105	396	41	26	1056	1009	C
		WB I-395/I-95 Connector	198	691	204	1,009	1,009	0	43	23	1,009						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	276	1,226	1,225	-1	32	20	653	540	33	20	690	1225	C
		WB I-395	106	107	264	1,225	1,225	0	34	21	728						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	750	1,942	1,945	3	43	22	972	1,030	43	22	972	1945	C
		I-95	76	539	280	1,945	1,945	0	43	22	972						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	474	1,001	998	-3	37	14	502						
			114	115	425	998	998	0	37	27	998	1,296	37	22	816	998	C
			115	574	188	998	998	0	38	26	998						
		I-95	574	146	209	998	997	-1	38	26	997						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — WESTBOUND

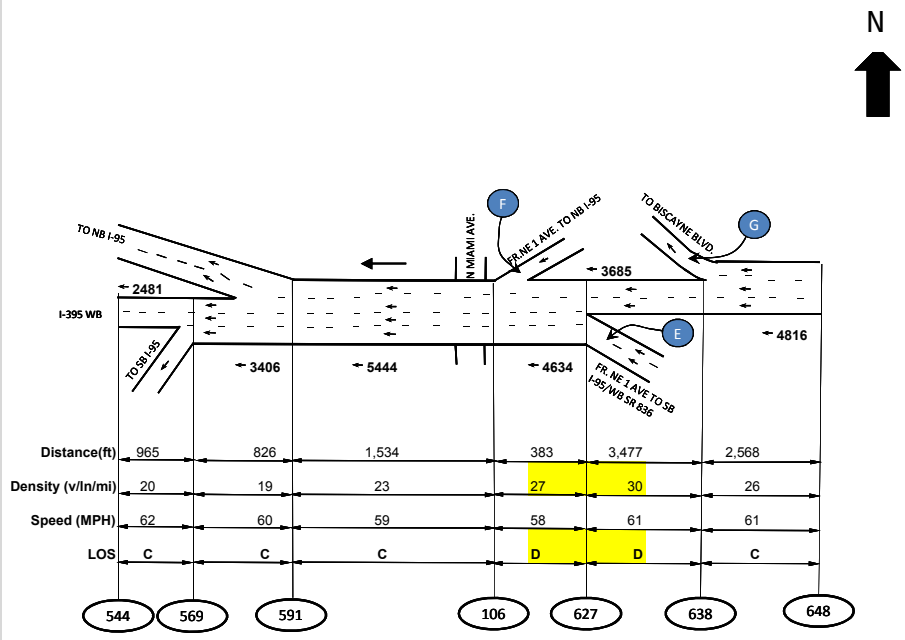
Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Speed (mph)	Density (vplpm)	Volume (Veh/Ln/H	Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	4,585	4,584	-1	63	18	1,157	2,568	62	18	1154	4583	B
		Biscayne Blvd. Off-Ramp	647	638	645	4,584	4,579	-5	60	19	1,146						
	Biscayne Blvd. Off-Ramp		638	97	599	3,660	3,662	2	62	19	1,157						
			97	637	410	3,662	3,663	1	63	15	916						
			637	629	545	3,663	3,663	0	61	15	916	2,113	58	17	984	3662	B
		WB I-395/I-95 Connector	629	50	559	3,663	3,661	-2	48	19	916						
	WB I-395/I-95 Connector		50	628	501	1,735	1,735	0	59	10	578						
			628	626	388	1,735	1,733	-2	63	9	578	2,409	63	9	578	1734	A
			626	627	502	1,733	1,732	-1	64	9	577						
		N Miami Ave. On-Ramp	627	107	1,018	1,732	1,735	3	64	9	578						
	N Miami Ave. On-Ramp		107	590	332	3,040	3,041	1	53	14	760						
			590	591	455	3,041	3,042	1	57	15	831	1,760	59	16	919	3042	B
			591	592	545	3,042	3,043	1	61	17	1,014						
		SR 836	592	569	428	3,043	3,041	-2	63	16	1,014						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	1,926	1,925	-1	42	23	963						
			625	189	253	1,925	1,925	0	44	15	642						
			189	205	253	1,925	1,924	-1	44	15	641	1,784	43	20	871	1925	C
			205	19	399	1,924	1,924	0	44	22	962						
		NE 1st Ave. On-Ramp	19	101	430	1,924	1,925	1	43	22	962						
	NE 1st Ave. On-Ramp		101	691	466	2,895	2,894	-1	43	22	965						
			691	238	339	2,894	2,895	1	43	22	965						
			238	109	357	2,895	2,895	0	43	22	965	1,641	43	22	965	2895	C
		NB I-95 On-Ramp	109	594	479	2,895	2,896	1	43	22	965						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	920	919	-1	43	22	919	548	43	22	919	919	C
		Biscayne Blvd.	738	7018	206	920	919	-1	43	22	919						
NE 1st Ave. On-Ramp (Ramp F)																	
	NE 1st Ave.		7004	198	212	970	969	-1	37	28	1,053	556	41	25	1002	970	C
		WB I-395/I-95 Connector	198	101	344	969	970	1	43	23	970						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	234	1,306	1,305	-1	34	20	704	545	36	21	774	1305	C
		WB I-395	106	107	311	1,305	1,305	0	38	22	827						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	931	1,933	1,933	0	43	22	967	1,211	43	22	967	1933	C
		I-95	76	539	280	1,933	1,933	0	43	22	966						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	299	963	963	0	39	12	482						
			114	115	386	963	963	0	38	13	482	1,529	37	16	594	962	B
			115	574	502	963	962	-1	36	14	497						
		I-95	574	158	342	962	962	0	37	26	962						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

FIGURE 5
I-395 FREEWAY LANE SCHEMATICS & AGGREGATE STATISTICS
2030 PEAK PERIOD

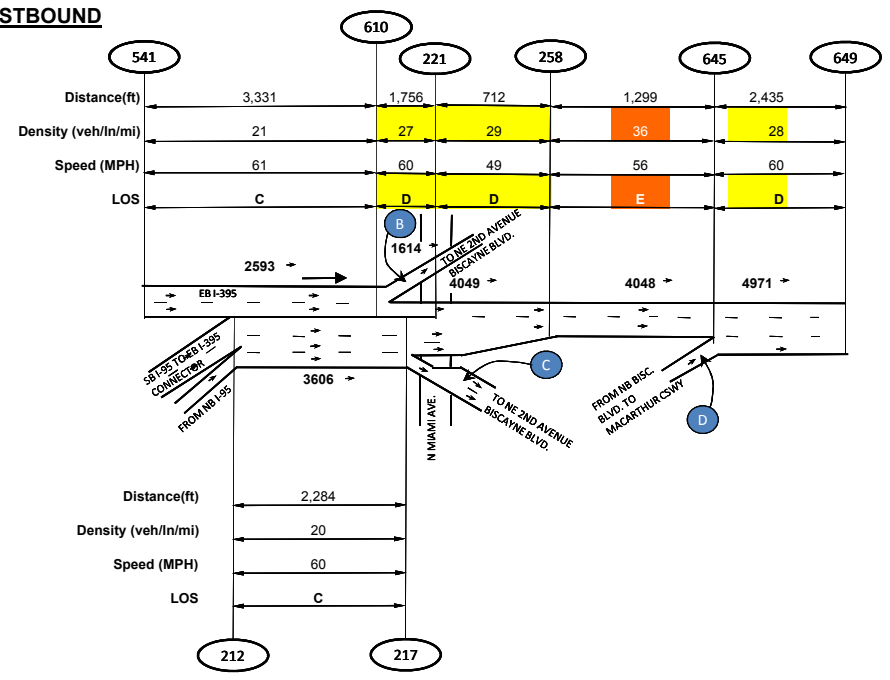
NO BUILD

WESTBOUND



Ramp	Density	Speed	LOS
E	17	36	B
F	18	46	B
G	27	42	D

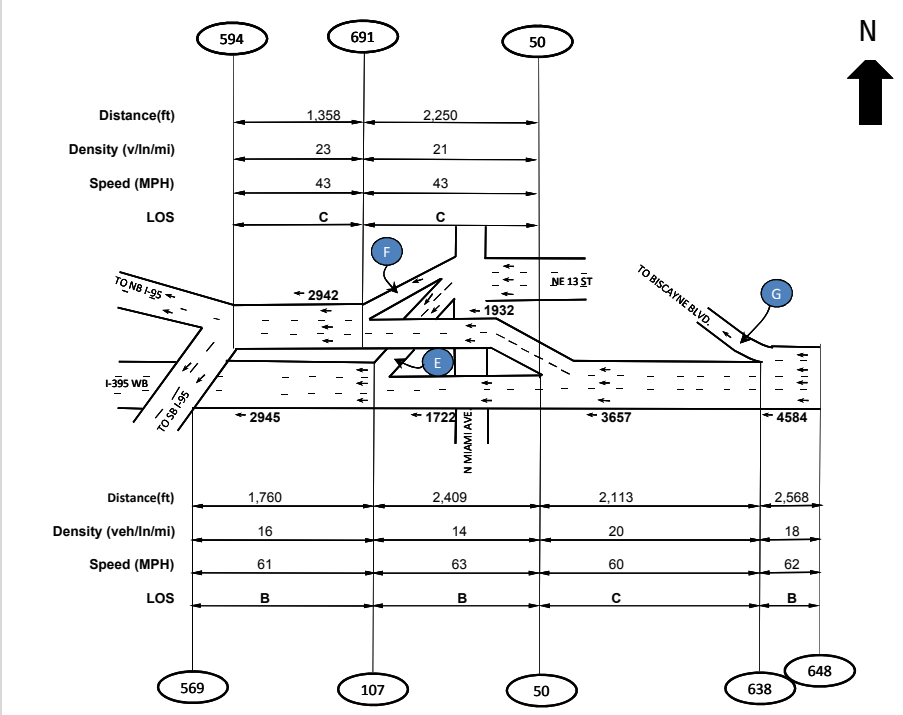
EASTBOUND



Ramp	Density	Speed	LOS
B	26	38	C
C	22	54	C
D	22	42	C

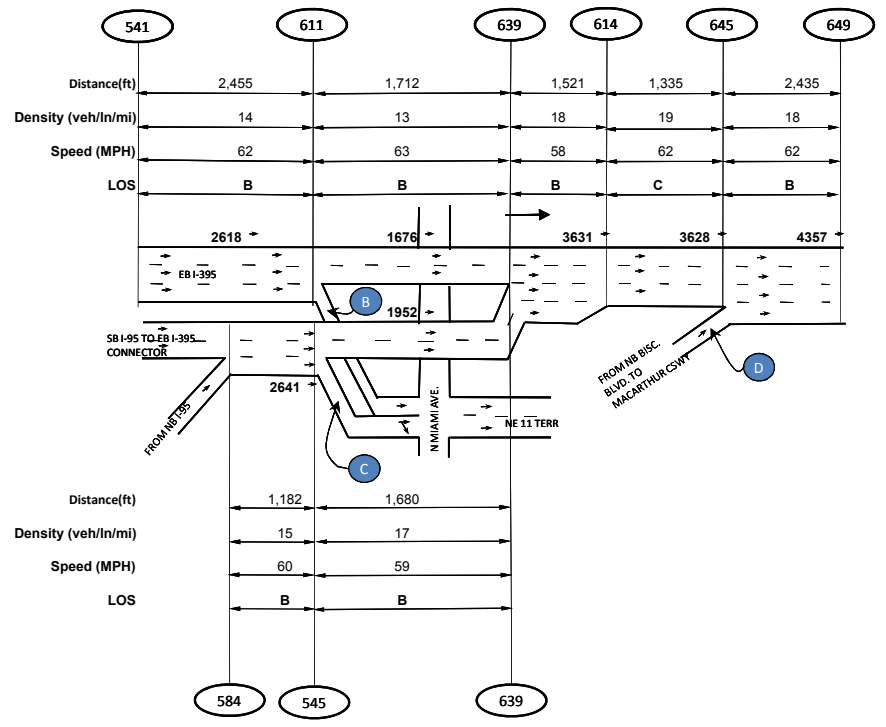
RECOMMENDED ALTERNATIVE (RECORD OF DECISION)

WESTBOUND



Ramp	Density	Speed	LOS
E	20	33	C
F	26	41	C
G	22	42	C

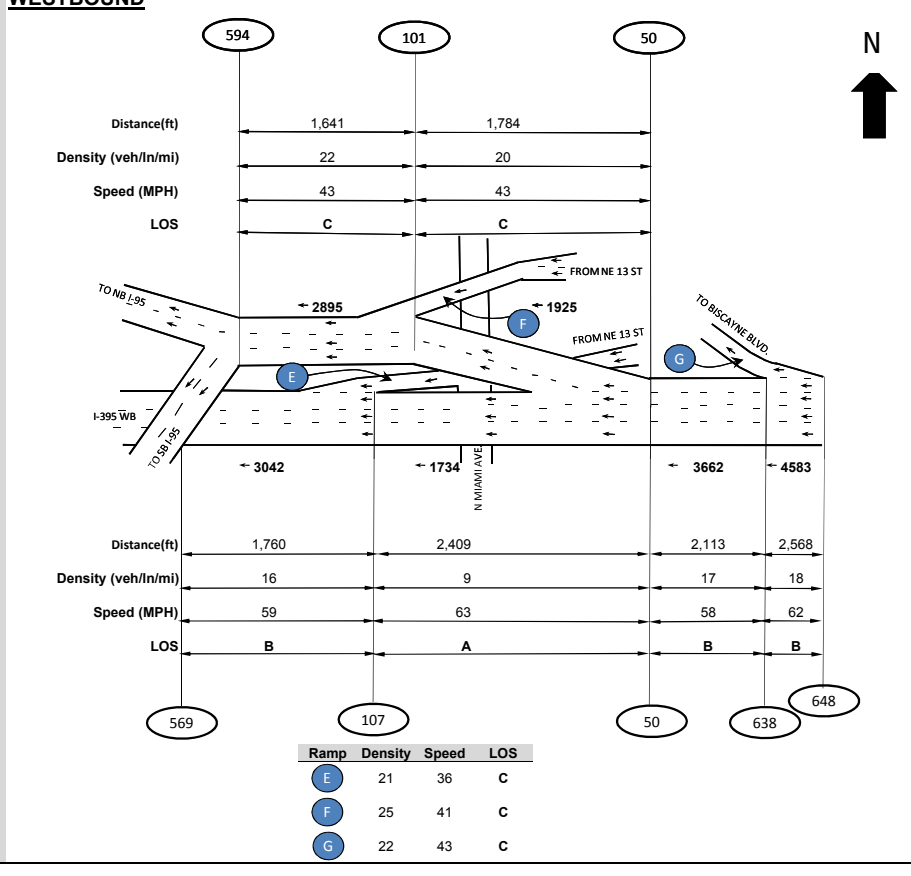
EASTBOUND



Ramp	Density	Speed	LOS
B	22	43	C
C	14	52	B
D	17	42	B

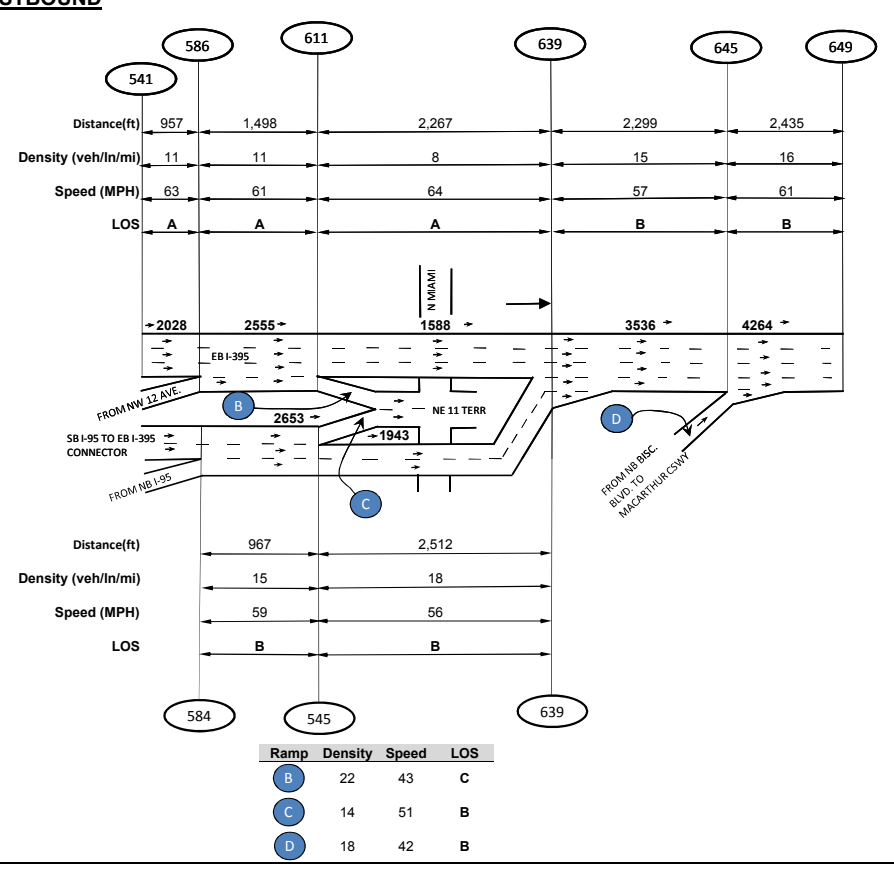
MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

WESTBOUND



Ramp	Density	Speed	LOS
E	21	36	C
F	25	41	C
G	22	43	C

EASTBOUND



Ramp	Density	Speed	LOS
B	22	43	C
C	14	51	B
D	18	42	B

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

LEGEND

LOS	Density (veh/ln/mi)
A	≤ 11
B	11 ≤ 18
C	18 ≤ 26
D	26 ≤ 35
E	35 ≤ 45
F	> 45

B Ramp
2520 Peak Hour Volume
107 Node Number

2040 Peak Period

Tables 4A and **4B** present a detailed summary and comparison of the 2040 peak period link based MOEs on I-395 for the eastbound and westbound directions respectively for all three scenarios. The same format, nomenclature and MOEs used to define the 2020 and 2030 peak periods were used to define the 2040 peak period. The aggregate segment statistics are graphically represented in **Figure 5.** The CORSIM output MOE report for the 2040 Peak period is included in **Appendix 'G'**

For the **"No-Build"** conditions the following operational findings were identified:

- In the eastbound direction, the average volume density from west of NE 2nd Avenue off-ramp to the MacArthur Causeway bridge, is projected to vary between 26 and 67 veh/lane/mile which comprises the highest density along the I-395 mainline in both directions. Within these limits, the highest density occurs just west of NE 2nd Avenue off-ramp which is projected to operate just at 67 veh/lane/mile, which according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010*, would indicate operation within an unacceptable range of greater than 45 veh/lane/mile.
- The average volume density on the eastbound I-95/I-395 connector from the northbound I-95 on-ramp to the NE 2nd Avenue off-ramp is projected to vary between 41 and 43 veh/lane/mile which is in the acceptable range.
- The northbound I-95 to I-395 eastbound ramp is projected to operate with an average density of 63 veh/lane/mile and at LOS 'F', represents a significant increase over the projected 2030 conditions. In addition with projected speeds of less than 35 MPH, queues are anticipated to form on the ramp.
- The NE 2nd Avenue off-ramp eastbound I-395 mainline to NE 2nd Avenue is projected to operate with an average density of over 120 veh/lane/mile which together with low speeds of well below 35 MPH is indicative of gridlock conditions and standing queues.
- The NE 2nd Avenue off-ramp from the eastbound I-395 connector to NE 2nd Avenue is projected to operate with an average density of over 80 veh/lane/mile which together with low speeds of well below 35 MPH is indicative of gridlock conditions and standing queues.
- In the westbound direction, the average volume density on I-395 from Biscayne Boulevard to NE 1st Avenue is 36 veh/lane/mile which is in the acceptable range.

For the **"Recommended Alternative (Record of Decision)"** the following operational findings were identified:

- All segments (i.e. mainline and ramps in both directions) are projected to either operate within the desirable range or acceptable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'D'.

For the **"Modified Recommended Alternative with Additional Lanes**" the following operational findings were identified:

- All segments (i.e. mainline and ramps in both directions) are projected to operate within either the desirable range or acceptable range of average densities according to the primary freeway performance criteria contained in the *FDOT CORSIM Handbook Draft July 2010* and operating speeds above 35 MPH.
- Similar to the 2020 and 2030 peak periods, improved traffic operations are projected in both directions for freeway segments that comprise the additional lanes.
- The projected levels of service for all ramps within the study area in both the eastbound and westbound directions range from LOS 'B' to LOS 'D'.

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Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 4A
2040 Peak Period - Eastbound
Freeway Measures of Effectivness

NO BUILD — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	Aggregate Statistics[1] LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	524	2,617	2,584	-33	30	59	1,300						
			538	586	457	2,584	2,556	-28	29	62	1,285	3,331	26	63	1258	2502	F
			586	587	543	2,556	2,524	-32	28	62	1,270						
			587	588	506	2,524	2,494	-30	27	63	1,256						
			588	611	449	2,494	2,464	-30	23	67	1,239						
			611	612	345	2,464	2,442	-22	22	67	1,226						
		NE 2nd. Ave. Off Ramp	612	610	507	2,442	2,426	-16	21	66	1,217						
	NE 2nd. Ave. Off Ramp		610	636	486	1,530	1,531	1	55	28	1,530	1,756	57	27	1533	1534	D
			636	255	344	1,531	1,534	3	57	27	1,533						
			255	104	451	1,534	1,535	1	58	26	1,534						
		EB I-395 Connector (Merge)	104	221	475	1,535	1,536	1	59	26	1,535						
	EB I-395 C	Lane Drop	221	258	712	3,890	3,894	4	47	29	1,369	712	47	29	1369	3894	D
	Lane Drop		258	614	257	3,894	3,893	-1	52	38	1,947						
			614	644	339	3,893	3,894	1	54	36	1,947	1,299	55	35	1948	3896	D
		Biscayne Blvd. On-Ramp	644	645	703	3,894	3,898	4	57	34	1,948						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,864	4,877	13	60	27	1,623	2,435	60	27	1623	4877	D
EB I-95/I-395 Connector																	
	I-95		581	582	284	1,956	1,951	-5	38	31	977	1,156	41	31	973	1942	D
			582	213	435	1,951	1,945	-6	40	31	974						
		NB I-95 On-Ramp	213	212	437	1,945	1,932	-13	45	30	969						
	NB I-95		212	214	283	3,515	3,495	-20	34	43	1,169	2,284	32	41	1148	3428	E
			214	215	496	3,495	3,461	-34	34	41	1,159						
			215	216	675	3,461	3,425	-36	32	41	1,147						
		NE 2nd. Ave. Off Ramp	216	217	830	3,425	3,387	-38	30	41	1,135						
	N Miami Ave. Off Ramp		217	218	180	2,350	2,350	0	59	20	1,175	1,518	54	22	1175	2351	C
			218	22	235	2,350	2,350	0	60	19	1,175						
			22	257	213	2,350	2,350	0	61	19	1,175						
			257	639	385	2,350	2,350	0	56	21	1,175						
		EB I-395 Mainline (Merge)	639	221	505	2,350	2,354	4	44	27	1,176						
NB I-95 On-Ramp																	
	I-95		203	209	487	1,619	1,606	-13	29	62	1,613	1,213	29	63	1602	1595	F
			209	210	278	1,606	1,597	-9	29	63	1,602						
		EB I-395 Connector	210	212	448	1,597	1,583	-14	29	64	1,591						
NE 2nd Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		610	21	301	896	885	-11	10	105	890	1,182	9	123	873	865	F
			21	39	470	885	867	-18	9	118	875						
		NE 2nd Ave	39	42	411	867	849	-18	7	141	858						
NE 2nd Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		217	222	169	1,037	1,032	-5	14	85	1,034	493	13	88	1027	1022	F
		NE 2nd Ave	222	51	324	1,032	1,017	-15	13	89	1,024						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		253	651	167	963	965	2	41	23	964	529	42	23	965	966	C
		EB I-395 Mainline	651	645	362	965	966	1	42	23	965						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	Aggregate Statistics[1] LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	2,901	2,901	0	63	15	967						
			538	586	457	2,901	2,902	1	63	15	967						
			586	587	543	2,902	2,901	-1	62	15	967	2,455	62	15	967	2900	B
			587	588	506	2,901	2,899	-2	62	16	967						
		N Miami Ave. Off Ramp	588	611	449	2,899	2,898	-1	60	16	966						
	N Miami Ave. Off Ramp		611	612	362	1,857	1,858	1	63	15	929						
			612	610	343	1,858	1,857	-1	63	15	929						
			610	636	577	1,857	1,857	0	63	15	928	1,712	63	15	928	1857	B
		EB I-395 Connector (Merge)	636	639	430	1,857	1,856	-1	63	15	928						
	EB I-395 Connector (Merge)		639	221	859	3,943	3,951	8	56	18	993	1,521	58	20	1134	3952	C
		Lane Drop	221	614	662	3,951	3,954	3	61	22	1,317						
	Lane Drop		614	644	632	3,954	3,955	1	62	21	1,318	1,335	62	21	1319	3955	C
		Biscayne Blvd. On-Ramp	644	645	703	3,955	3,955	0	62	21	1,319						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,788	4,790	2	61	19	1,198	2,435	61	19	1198	4790	C
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,563	1,563	0	50	16	782						
			582	199	185	1,563	1,564	1	46	17	782						
			199	663	289	1,564	1,565	1	45	17	782	1,149	50	16	782	1564	B
		NB I-95 On-Ramp	663	584	372	1,565	1,565	0	55	14	783						
	NB I-95		584	585	347	2,826	2,826	0	58	16	942	1,182	59	16	942	2826	B
			585	620	445	2,826	2,826	0	60	16	942						
		N Miami Ave. Off Ramp	620	545	390	2,826	2,827	1	60	16	942						
	N Miami Ave. Off Ramp		545	51	654	2,091	2,089	-2	62	17	1,045						
			51	650	395	2,089	2,088	-1	62	17	1,044	1,680	59	18	1044	2088	B
			650	22	251	2,088	2,088	0	60	17	1,044						
		EB I-395 Mainline (Merge)	22	639	380	2,088	2,087	-1	49	21	1,044						
NB I-95 On-Ramp																	
	I-95		207	209	190	1,258	1,258	0	44	29	1,258						
			209	583	573	1,258	1,261	3	40	31	1,259	1,211	43	29	1260	1261	D
		EB I-395 Connector	583	584	448	1,261	1,261	0	46	27	1,261						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	1,041	1,042	1	44	24	1,041	714	43	25	1042	1042	C
		N Miami Ave	156	7010	386	1,042	1,042	0	42	25	1,042						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	303	736	736	0	58	13	735	702	52	15	736	736	B
			59	192	241	736	736	0	49	15	736						
		N Miami Ave	192	7007	158	736	736	0	44	17	736						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	833	834	1	42	20	834	600	42	20	834	833	C
		EB I-395 Mainline	651	645	349	834	833	-1	42	20	834						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — EASTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	Aggregate Statistics[1] LOS[2]
EB I-395 Mainline																	
	SR 836		541	538	500	2,400	2,400	0	63	13	800						
		NW 12 Ave On-Ramp	538	586	457	2,400	2,404	4	63	13	801	957	63	13	800	2402	B
	NW 12 Ave On-Ramp		586	587	543	2,917	2,916	-1	60	12	729						
			587	588	506	2,916	2,917	1	62	12	729	1,498	61	12	729	2917	B
		N Miami Ave. Off Ramp	588	611	449	2,917	2,919	2	60	12	729						
	N Miami Ave. Off Ramp		611	612	362	1,818	1,818	0	63	10	606						
			612	610	343	1,818	1,819	1	64	10	606						
			610	636	577	1,819	1,818	-1	64	10	606	2,267	63	10	606	1819	A
		EB I-395 Connector (Merge)	636	639	985	1,818	1,820	2	63	10	606						
	EB I-395 Connector (Merge)		639	221	302	3,875	3,875	0	40	21	847						
			221	614	662	3,875	3,875	0	55	18	969						
			614	644	632	3,875	3,875	0	61	16	969	2,299	57	17	953	3875	B
		Biscayne Blvd. On-Ramp	644	645	703	3,875	3,876	1	63	15	969						
	Biscayne B	Mac Arthur Causeway	645	649	2,435	4,707	4,714	7	61	18	1,089	2,435	61	18	1089	4714	B
EB I-95/I-395 Connector																	
	I-95		581	582	303	1,568	1,568	0	50	16	784						
			582	199	185	1,568	1,567	-1	46	17	784	1,149	50	16	783	1566	B
			199	663	289	1,567	1,566	-1	45	18	783						
		NB I-95 On-Ramp	663	584	372	1,566	1,565	-1	55	14	783						
	NB I-95		584	585	347	2,796	2,796	0	58	16	932						
			585	620	332	2,796	2,797	1	60	16	932	967	58	16	932	2797	B
		N Miami Ave. Off Ramp	620	545	288	2,797	2,797	0	57	16	932						
	N Miami Ave. Off Ramp		545	51	1,254	2,055	2,054	-1	61	17	1,027						
			51	650	270	2,054	2,053	-1	62	17	1,027	2,512	56	19	1027	2054	C
			650	22	424	2,053	2,054	1	57	18	1,027						
		EB I-395 Mainline (Merge)	22	639	564	2,054	2,056	2	42	24	1,027						
NB I-95 On-Ramp																	
	I-95		207	209	190	1,226	1,227	1	44	28	1,226						
			209	583	573	1,227	1,228	1	41	30	1,227	1,211	43	28	1228	1229	D
		EB I-395 Connector	583	584	448	1,228	1,230	2	46	26	1,229						
N Miami Ave. Off Ramp (Ramp B)																	
	EB I-395 Mainline		611	156	328	1,101	1,101	0	44	25	1,102	328	43	25	1102	1101	C
		N Miami Ave	156	7010	242	1,101	1,100	-1	42	26	1,101						
N Miami Ave. Off Ramp (Ramp C)																	
	EB I-395 Connector		545	59	239	742	742	0	56	13	742	751	50	15	742	742	B
			59	192	247	742	742	0	50	15	742						
		N Miami Ave	192	7007	265	742	742	0	44	17	742						
Biscayne Blvd. On-Ramp (Ramp D)																	
	Biscayne Blvd.		215	651	251	833	832	-1	42	20	833	600	42	20	832	831	C
		EB I-395 Mainline	651	645	349	832	831	-1	42	20	832						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

Density (veh/ln/mi)	LOS
≤ 11	A
11 ≤ 18	B
18 ≤ 26	C
26 ≤ 35	D
35 ≤ 45	E
> 45	F

TABLE 4B
2040 Peak Period - Westbound
Freeway Measures of Effectivness

NO BUILD — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	5,572	5,570	-2	60	31	1,877	2,568	59	32	1872	5570	D
		Biscayne Blvd. Off-Ramp	647	638	645	5,570	5,571	1	55	34	1,857						
	Biscayne Blvd. Off-Ramp		638	97	599	4,273	4,272	-1	58	37	2,136	3,477	59	36	2135	4270	E
			97	637	338	4,272	4,271	-1	59	36	2,136						
			637	629	580	4,271	4,269	-2	59	36	2,135						
			629	50	536	4,269	4,270	1	59	36	2,135						
			50	628	605	4,270	4,270	0	59	36	2,135						
			628	626	373	4,270	4,270	0	59	36	2,135						
		NE 1st Ave. On-Ramp (east)	626	627	446	4,270	4,270	0	59	36	2,135						
	NE 1st Ave. On-Ramp (east)	NE 1st Ave. On-Ramp (west)	627	106	383	5,091	5,092	1	57	30	1,697	383	57	30	1697	5092	D
	NE 1st Ave. On-Ramp (west)		106	107	405	5,752	5,756	4	58	25	1,439	1,534	58	25	1440	5760	C
			107	590	559	5,756	5,760	4	60	24	1,439						
		NB I-95 Off-Ramp	590	591	570	5,760	5,764	4	57	25	1,441						
	NB I-95 Off-Ramp	SB I-95 Off-Ramp	591	569	826	3,672	3,676	4	59	21	1,225	826	59	21	1225	3676	C
	SB I-95 Off-Ramp	SR 836	569	544	965	2,680	2,680	0	62	22	1,340	965	62	22	1340	2680	C
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	334	1,299	1,298	-1	41	31	1,298	534	41	32	1297	1297	D
		Biscayne Blvd.	738	7018	200	1,298	1,296	-2	40	33	1,296						
NE 1st Ave. On-Ramp (east) (Ramp E)																	
	NE 1st Ave.		219	262	296	821	820	-1	31	11	344	515	36	15	546	820	B
		WB I-395	262	627	219	820	821	1	42	20	820						
NE 1st Ave. On-Ramp (west) (Ramp F)																	
	NE 1st Ave.		101	150	276	658	659	1	43	15	659	704	46	14	660	660	B
		WB I-395	150	106	428	659	661	2	48	14	660						
NB I-95 Off-Ramp																	
	WB I-395		591	182	329	2,091	2,092	1	43	24	1,046	734	44	20	854	2093	C
		I-95	182	188	405	2,092	2,094	2	44	16	698						
SB I-95 Off-Ramp																	
	WB I-395		569	114	167	996	996	0	52	19	995	652	49	20	995	996	C
			114	189	242	996	995	-1	50	20	995						
		I-95	189	205	243	995	996	1	45	22	996						

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) — WESTBOUND

Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	5,303	5,308	5	63	21	1,339	2,568	62	21	1336	5308	C
		Biscayne Blvd. Off-Ramp	647	638	645	5,308	5,309	1	59	22	1,327						
	Biscayne Blvd. Off-Ramp		638	97	599	4,259	4,259	0	60	24	1,420						
			97	637	410	4,259	4,260	1	61	23	1,420						
			637	629	545	4,260	4,262	2	61	23	1,420	2,113	59	24	1420	4261	C
		WB I-395/I-95 Connector	629	50	559	4,262	4,263	1	56	25	1,421						
	WB I-395/I-95 Connector		50	628	501	2,011	2,011	0	61	16	1,006						
			628	626	388	2,011	2,010	-1	63	16	1,005	2,409	63	16	1005	2009	B
			626	627	502	2,010	2,009	-1	63	16	1,005						
		N Miami Ave. On-Ramp	627	107	1,018	2,009	2,007	-2	63	16	1,004						
	N Miami Ave. On-Ramp		107	590	332	3,414	3,412	-2	55	21	1,138						
			590	591	455	3,412	3,413	1	60	19	1,138	1,760	60	19	1137	3413	C
			591	592	545	3,413	3,412	-1	62	18	1,137						
		SR 836	592	569	428	3,412	3,413	1	63	18	1,137						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	2,252	2,251	-1	43	26	1,126						
			625	189	253	2,251	2,253	2	43	17	751						
			189	205	253	2,253	2,252	-1	43	17	751						
			205	19	399	2,252	2,249	-3	43	26	1,125	2,250	43	24	1040	2249	C
			19	101	430	2,249	2,248	-1	43	26	1,124						
		N Miami Ave. On-Ramp	101	691	466	2,248	2,246	-2	42	27	1,123						
	N Miami Ave. On-Ramp		691	238	482	3,391	3,392	1	43	26	1,131						
			238	109	501	3,392	3,391	-1	43	26	1,130	1,358	43	26	1130	3392	C
		NB I-95 On-Ramp	109	594	375	3,391	3,392	1	43	27	1,130						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	1,050	1,050	0	42	25	1,050	548	42	25	1050	1050	C
		Biscayne Blvd.	738	7018	206	1,050	1,049	-1	42	25	1,050						
N Miami Ave. On-Ramp (Ramp F)																	
	N Miami Ave.		7004	198	192	1,145	1,145	0	38	33	1,254	396	41	30	1198	1145	D
		WB I-395/I-95 Connector	198	691	204	1,145	1,145	0	43	27	1,145						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	276	1,408	1,407	-1	31	24	750	540	35	23	793	1407	C
		WB I-395	106	107	264	1,407	1,407	0	39	22	837						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	750	2,257	2,253	-4	43	26	1,128	1,030	43	26	1127	2253	C
		I-95	76	539	280	2,253	2,252	-1	43	26	1,126						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	474	1,135	1,133	-2	37	15	569						
			114	115	425	1,133	1,132	-1	37	30	1,132	1,296	37	25	926	1132	C
			115	574	188	1,132	1,132	0	38	30	1,132						
		I-95	574	146	209	1,132	1,132	0	38	30	1,132						

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES — WESTBOUND

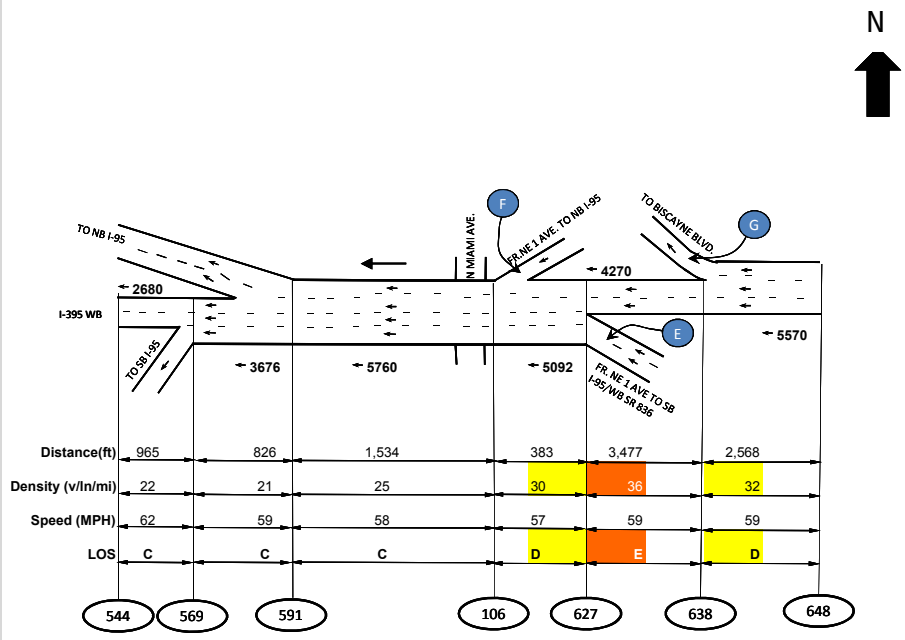
Segment	Location From	Location To	Node From	Node To	Length (ft)	Volumes Actual	Volumes Simulated	Volumes Difference	Link Statistics Speed (mph)	Link Statistics Density (vplpm)	Link Statistics Volume (Veh/Ln/Hr)	Aggregate Statistics[1] Length (ft)	Aggregate Statistics[1] Speed (mph)	Aggregate Statistics[1] Density (vplpm)	Aggregate Statistics[1] Volume (Veh/Ln/H	Aggregate Statistics[1] Volume (Veh/Hr)	LOS[2]
WB I-395 Mainline																	
	Mac Arthur Causeway		648	647	1,923	5,298	5,293	-5	63	21	1,337	2,568	62	21	1333	5293	C
		Biscayne Blvd. Off-Ramp	647	638	645	5,293	5,294	1	60	22	1,323						
	Biscayne Blvd. Off-Ramp		638	97	599	4,226	4,229	3	62	22	1,336						
			97	637	410	4,229	4,227	-2	62	17	1,057						
			637	629	545	4,227	4,229	2	60	18	1,057	2,113	56	21	1136	4229	C
		WB I-395/I-95 Connector	629	50	559	4,229	4,231	2	42	25	1,057						
	WB I-395/I-95 Connector		50	628	501	1,976	1,977	1	57	12	659						
			628	626	388	1,977	1,976	-1	62	11	659	2,409	62	11	659	1977	A
			626	627	502	1,976	1,976	0	63	10	659						
		N Miami Ave. On-Ramp	627	107	1,018	1,976	1,977	1	63	10	659						
	N Miami Ave. On-Ramp		107	590	332	3,487	3,487	0	53	17	872						
			590	591	455	3,487	3,488	1	55	17	953	1,760	58	18	1054	3489	B
			591	592	545	3,488	3,489	1	60	19	1,163						
		SR 836	592	569	428	3,489	3,491	2	62	19	1,163						
WB I-395/I-95 Connector																	
	WB I-395 Mainline (Diverge)		50	625	449	2,255	2,256	1	42	27	1,128						
			625	189	253	2,256	2,258	2	44	17	752						
			189	205	253	2,258	2,258	0	44	17	753	1,784	43	24	1022	2257	C
			205	19	399	2,258	2,257	-1	44	26	1,129						
		NE 1st Ave. On-Ramp	19	101	430	2,257	2,255	-2	43	26	1,128						
	NE 1st Ave. On-Ramp		101	691	466	3,358	3,358	0	43	26	1,119						
			691	238	339	3,358	3,359	1	43	26	1,119						
			238	109	357	3,359	3,360	1	43	26	1,120	1,641	43	26	1120	3360	C
		NB I-95 On-Ramp	109	594	479	3,360	3,363	3	43	26	1,121						
Biscayne Blvd. Off-Ramp (Ramp G)																	
	WB I-395 Mainline		638	738	342	1,068	1,069	1	42	25	1,068	548	42	25	1068	1069	C
		Biscayne Blvd.	738	7018	206	1,068	1,069	1	42	25	1,068						
NE 1st Ave. On-Ramp (Ramp F)																	
	NE 1st Ave.		7004	198	212	1,103	1,103	0	37	32	1,198	556	41	28	1139	1103	D
		WB I-395/I-95 Connector	198	101	344	1,103	1,103	0	43	26	1,103						
N Miami Ave. On-Ramp (Ramp E)																	
	N Miami Ave.		7001	106	234	1,510	1,509	-1	34	24	814	545	36	25	895	1509	C
		WB I-395	106	107	311	1,509	1,509	0	37	26	956						
NB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	76	931	2,249	2,245	-4	43	26	1,124	1,211	43	26	1124	2245	C
		I-95	76	539	280	2,245	2,245	0	43	26	1,123						
SB I-95 Off-Ramp																	
	WB I-395/I-95 Connector		594	114	299	1,113	1,113	0	39	14	556						
			114	115	386	1,113	1,114	1	38	14	557	1,529	37	18	687	1113	B
			115	574	502	1,114	1,113	-1	36	16	575						
		I-95	574	158	342	1,113	1,114	1	37	30	1,114						

Notes:
1. MOEs were consolidated into an aggregate segment statistic by calculating weighted averages based on the length of each link.
2. LOS based on Chapter 23 of the Highway Capacity Manual 2000.

FIGURE 6
I-395 FREEWAY LANE SCHEMATICS & AGGREGATE STATISTICS
2040 PEAK PERIOD

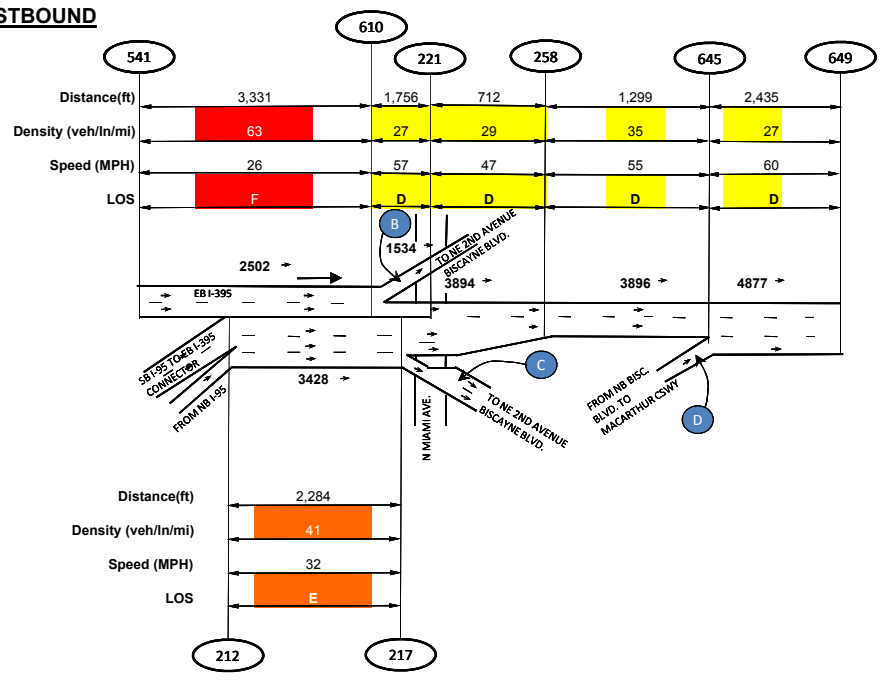
NO BUILD

WESTBOUND



Ramp	Density	Speed	LOS
E	15	36	B
F	14	46	B
G	32	41	D

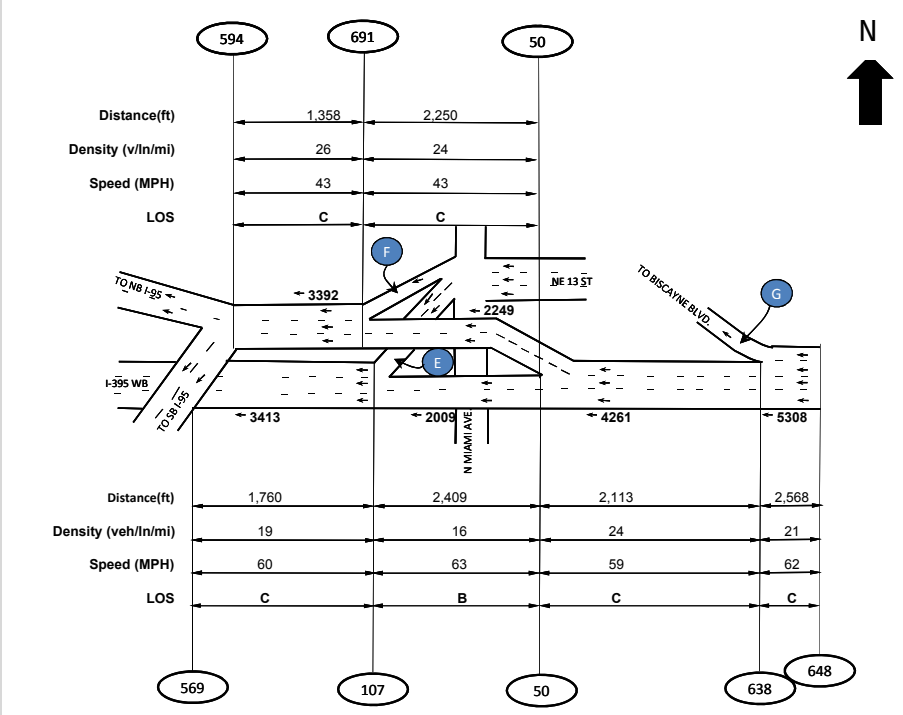
EASTBOUND



Ramp	Density	Speed	LOS
B	123	9	F
C	88	13	F
D	23	42	C

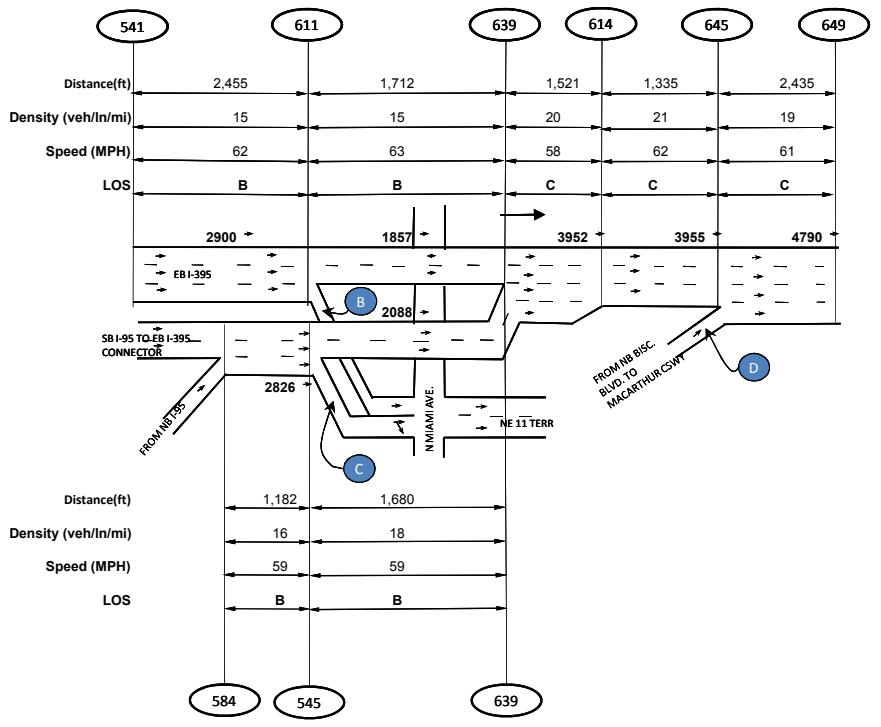
RECOMMENDED ALTERNATIVE (RECORD OF DECISION)

WESTBOUND



Ramp	Density	Speed	LOS
E	23	35	C
F	30	41	D
G	25	42	C

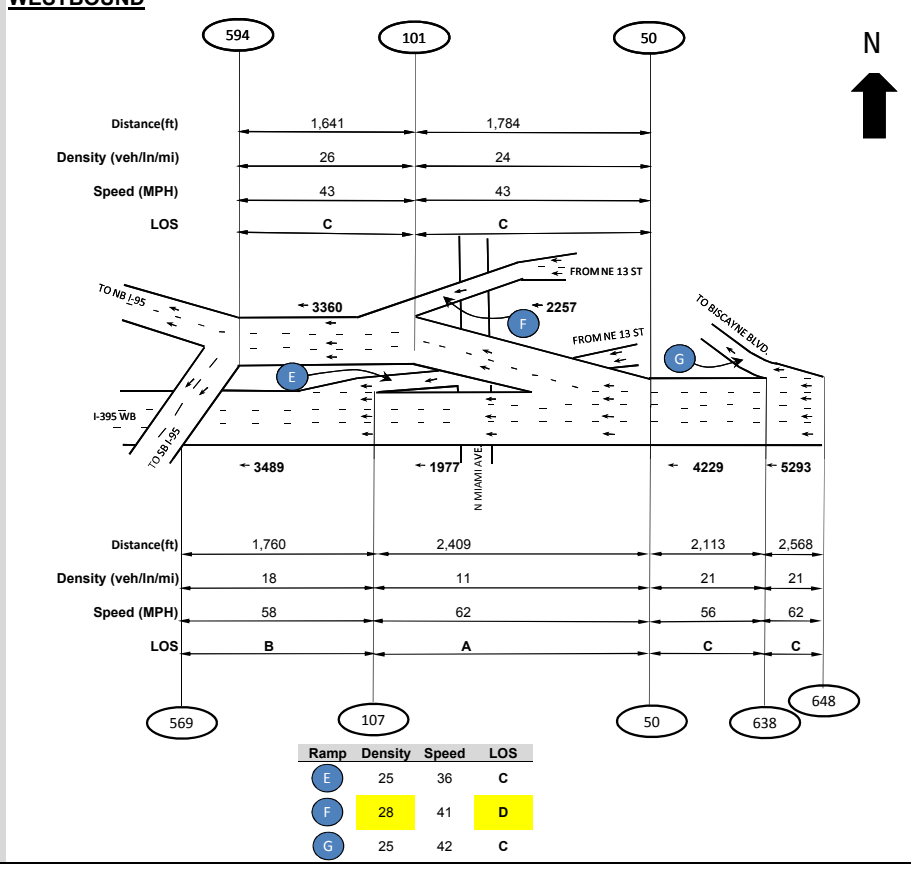
EASTBOUND



Ramp	Density	Speed	LOS
B	25	43	C
C	15	52	B
D	20	42	C

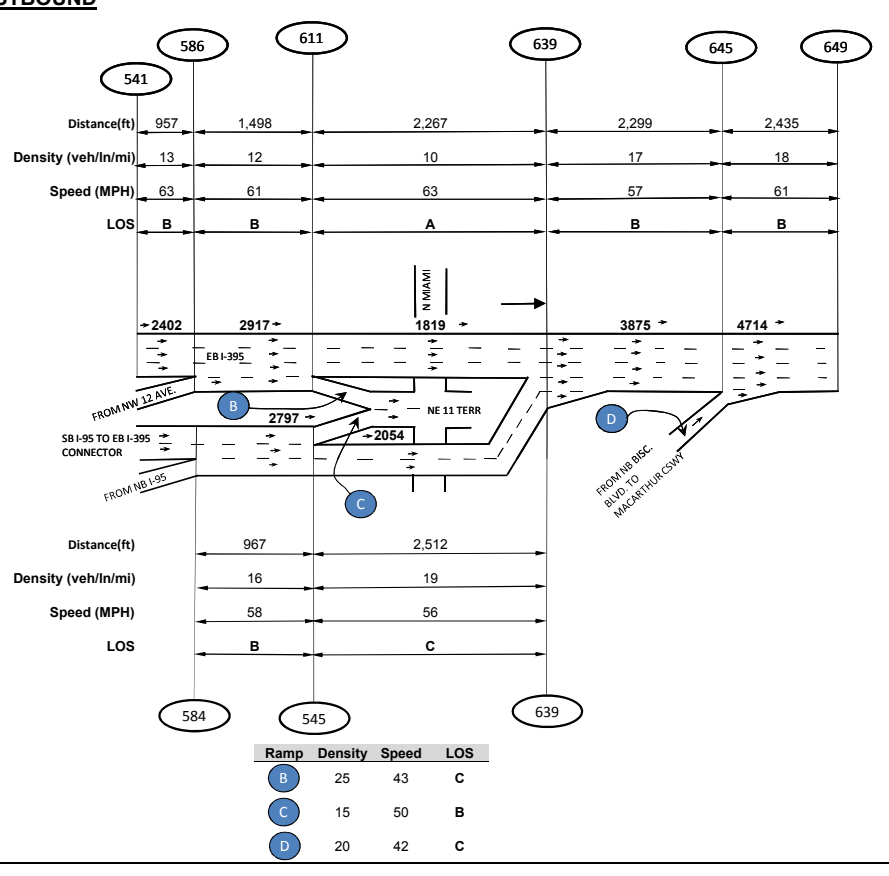
MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

WESTBOUND



Ramp	Density	Speed	LOS
E	25	36	C
F	28	41	D
G	25	42	C

EASTBOUND



Ramp	Density	Speed	LOS
B	25	43	C
C	15	50	B
D	20	42	C

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES

LEGEND

LOS	Density (veh/ln/mi)
A	≤ 11
B	11 ≤ 18
C	18 ≤ 26
D	26 ≤ 35
E	35 ≤ 45
F	> 45

B Ramp
2520 Peak Hour Volume
107 Node Number

It should be noted that the CORSIM analysis for the modified recommended alternative was coded to include the entire mainline and connector segments and as a consequence the operational performances in the weave sections and individual merge/diverge areas are accounted for in the results. The overall results for the links (speeds and densities) are within acceptable levels and therefore correlate to good operations of the weave and merge areas. Therefore, the projected weave and merge operations should be acceptable.

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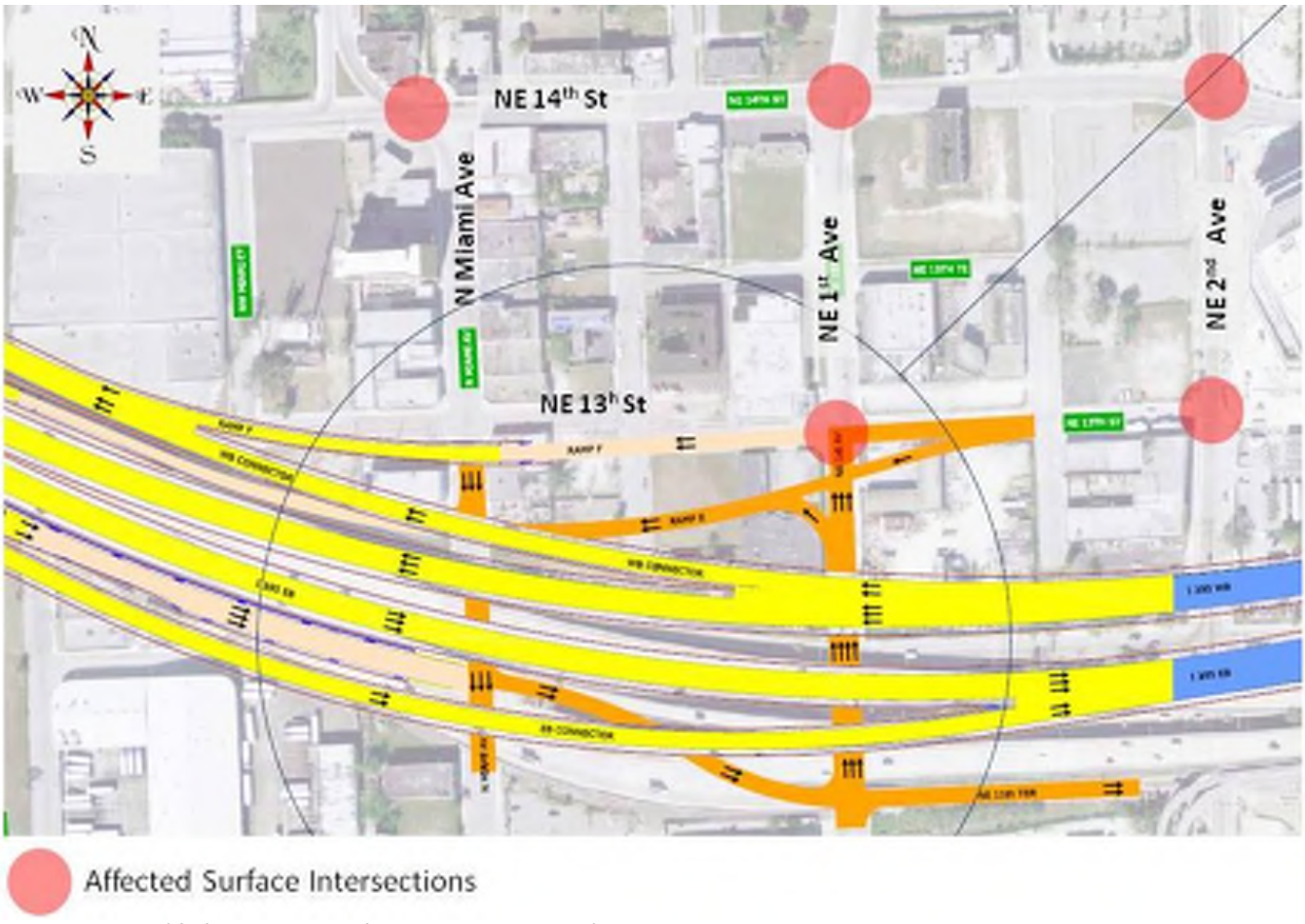
4.5 SYNCHRO TRAFFIC OPERATIONAL ANALYSIS

Similar to the CORSIM analysis, the SYNCHRO analysis presented in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009,* focused on one peak period for future conditions. As part of the PD&E study, Metric Engineering developed SYNCHRO networks for the peak period including networks representing the build alternative (record of decision) for the future years. Given that the modified concept design developed by BCC will alter the traffic circulation at some intersections within the vicinity of the I-395 ramp interchange requiring some modification to the signal timings, an operational analysis was performed to ensure that these changes would not adversely impact traffic operations at these intersection when compared to the impacts associated with the circulation patterns that would result if the ROD was implemented. **Figure 6**, depicts the intersections that are anticipated to be impacted by the change in traffic circulation associated with the modified concept design. **Figures F-1** through **F-3** in **Appendix 'F'**, depict the adjustments made to the turning movements at these intersections to reflect the new traffic circulation.

Figure 6: SYNCHRO Analysis – Impacted Intersections



Source: Modified Concept Design by BCC Engineering – February 2013

The primary Measures of Effectiveness (MOEs) used to assess the relative performance were total delay (control and queue), Level of Service (LOS), volume/capacity (v/c), and

95th Percentile Queue (feet). Detailed summaries and comparisons of intersection MOEs are provided for the following five (5) intersections affected by the proposed redesign:

- NE 14th Street at N Miami Avenue Signalized
- NE 14th Street at NE 1st Avenue Signalized
- NE 14th Street at NE 2nd Avenue Signalized
- NE 13th Street at NE 2nd Avenue Signalized
- NE 13th Street at NE 1st Avenue Signalized

The SYNCHRO output MOE reports for all three years are included in **Appendix 'F'. Figures 7A** through **7E** depict the signal timing and phasing plans that were used in the in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* to analyze projected traffic conditions associated with the Record of Design.

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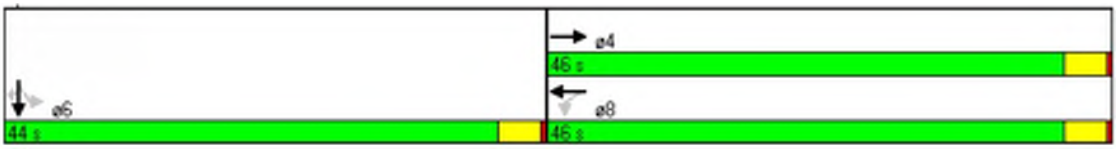
Figure 7A: ROD Signal Timing & Phasing – NE 14th St. at N Miami Ave

2020 Peak

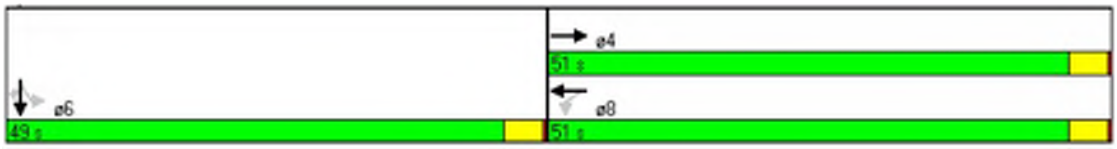


Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 90 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø6*	*Ø4 & Ø8*
Green	*40 (20)*	*42 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	44	46

2030 Peak

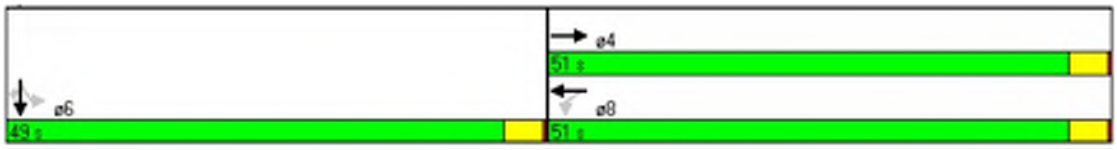


Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø6*	*Ø4 & Ø8*
Green	*45 (20)*	*47 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	49	51

2040 Peak



Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø6*	*Ø4 & Ø8*
Green	*45 (20)*	*47 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	49	51

U:\1104 - I-395\Reanalysis\3_2013\Report\[Synchro_Summary_tables.xlsx]ROD_Timing_14St_NMiami

Figure 7B: ROD Signal Timing & Phasing – NE 14th St. at NE 1st Ave

2020 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 90 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø4 & Ø8*
Green	*52 (20)*	*30 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	56	34

2030 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø4 & Ø8*
Green	*62 (20)*	*30 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	66	34

2040 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø4 & Ø8*
Green	*65 (20)*	*37 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	69	31

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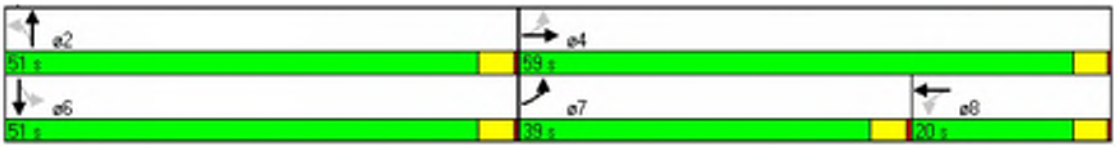
Figure 7C: ROD Signal Timing & Phasing – NE 14th St. at NE 2nd Ave

2020 Peak



Notes:

1. Grayed out arrows denote permissive movements.

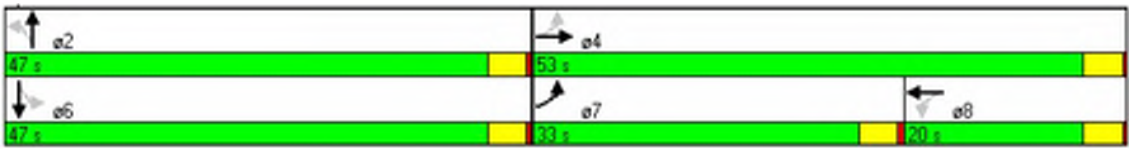
2. Cycle length = 90 seconds

3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø4 & Ø7*	*Ø4 & Ø8*
Green	*47 (20)*	*35 (20)*	*16 (8)*
Yellow	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*
Split	51	39	20

2030 Peak



Notes:

1. Grayed out arrows denote permissive movements.

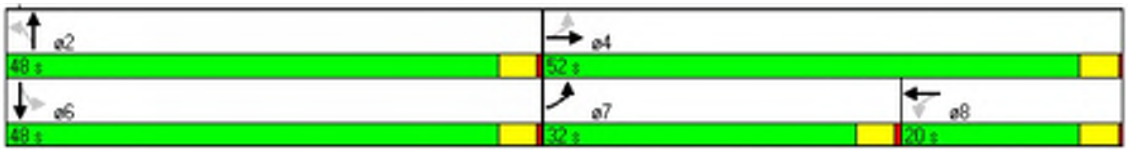
2. Cycle length = 100 seconds

3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø4 & Ø7*	*Ø4 & Ø8*
Green	*43 (20)*	*29 (20)*	*16 (8)*
Yellow	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*
Split	47	33	20

2040 Peak



Notes:

1. Grayed out arrows denote permissive movements.

2. Cycle length = 100 seconds

3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø4 & Ø7*	*Ø4 & Ø8*
Green	*44 (20)*	*28 (20)*	*16 (8)*
Yellow	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*
Split	48	32	20

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Figure 7D: ROD Signal Timing & Phasing – NE 13th St. at NE 2nd Ave

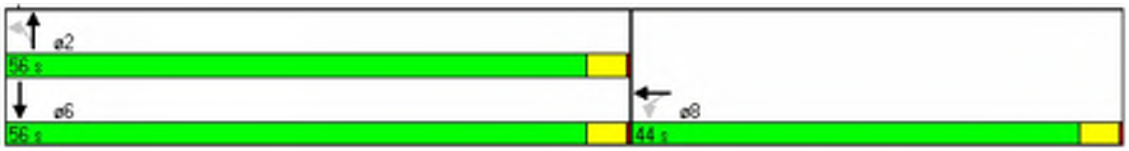
2020 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 90 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø8*
Green	*57 (20)*	*25 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	61	29

2030 Peak



Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø8*
Green	*52 (20)*	*40 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	56	44

2040 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø8*
Green	*66 (20)*	*26 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	70	30

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Figure 7E: ROD Signal Timing & Phasing – NE 13th St. at NE 1st Ave

2020 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 90 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø8*
Green	*57 (20)*	*25 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	61	29

2030 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø8*
Green	*63 (20)*	*29 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	67	33

2040 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø8*
Green	*62 (20)*	*30 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	66	34

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4.5.1 NE 14th Street at N Miami Avenue

The operational analysis performed for ROD utilized design peak hour turning movements as developed in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* signal timing information from that study which are depicted in **Figure 7A** of this report. For the projected traffic conditions associated with the modified concept design developed by BCC, the design peak hour turning movements were adjusted to reflect the traffic diversions that are anticipated due to the reconfiguration in the on-ramp access that is proposed as part of that design. Turning movements anticipated to be affected by these diversions include decreased southbound through movement, increased southbound left turn movement, decreased westbound left turn movement, decreased eastbound right turn movement and increased eastbound through movement compared to the traffic circulation associated with the approved design. The signal timing plans modified to accommodate the anticipated change in traffic patterns at the intersection due to these diversions for the affected periods are depicted in **Figure 7F**. Only the phase splits were adjusted and no change was made to the signal cycle length.

Figure 7F: MA Signal Timing & Phasing – NE 14th St. at NE 1st Ave

2030 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø6*	*Ø4 & Ø8*
Green	*53 (20)*	*39 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	57	43

2040 Peak

Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø6*	*Ø4 & Ø8*
Green	*23 (20)*	*69 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	27	73

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Table 5A on the following page presents detailed summaries and comparisons of the MOEs of the modified alternative versus approved conditions.

Table 5A: NE 14th Street at N Miami Avenue SYNCHRO Results

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2020 PEAK	EB	TR	72	2.4	A	0.12	13	119	5.6	A	0.12	22	3.2	133%	Same	0%	9	69%
		Appr	-	2.4	A	-	-	-	5.6	A	-	-	3.2	133%	Same	-	-	-
	WB	L	268	14.4	B	0.54	150	134	1.5	A	0.27	2	(12.9)	-90%	Better	-50%	(148)	-99%
		TR	30	0.7	A	0.04	25	30	0.4	A	0.04	25	(0.3)	-43%	Same	0%	0	0%
		Appr	-	13.0	B	-	-	-	1.3	A	-	-	(11.7)	-90%	Better	-	-	-
	SB	TL	475	17.5	B	0.37	107	237	17.6	B	0.38	148	0.1	1%	Same	3%	41	38%
		R	8	7.9	A	0.01	-	8	7.9	A	0.01	-	0.0	0%	Same	0%	-	-
		Appr	-	17.3	B	-	-	-	17.5	B	-	-	0.2	1%	Same	-	-	-
	Intersection			13.5	B	-	-		12	B	-	-	(1.5)	-11%	Same	-	-	-
2030 PEAK	EB	TR	83	2.7	A	0.17	15	137	14.7	B	0.29	66	12.0	444%	Worse	71%	51	340%
		Appr	-	2.7	A	-	-	-	14.7	B	-	-	12.0	444%	Worse	-	-	-
	WB	L	311	62.0	E	0.84	189	155	69.8	E	0.77	82	7.8	13%	Same	-8%	(107)	-57%
		TR	34	3.4	A	0.06	25	34	24.1	C	0.10	17	20.7	609%	Worse	67%	(8)	-32%
		Appr	-	56.2	E	-	-	-	61.5	E	-	-	5.3	9%	Same	-	-	-
	SB	TL	549	14.2	B	0.34	190	274	6.2	A	0.27	123	(8.0)	-56%	Better	-21%	(67)	-35%
		R	9	7.8	A	0.01	9	9	3.6	A	0.01	6	(4.2)	-54%	Same	0%	(3)	-33%
		Appr	-	14.1	B	-	-	-	6.2	A	-	-	(7.9)	-56%	Better	-	-	-
	Intersection			25	C	-	-		18.5	B	-	-	(6.5)	-26%	Better	-	-	-
2040 PEAK	EB	TR	96	2.5	A	0.18	16	158	24.7	C	0.27	40	22.2	888%	Worse	50%	24	150%
		Appr	-	2.5	A	-	-	-	24.7	C	-	-	22.2	888%	Worse	-	-	-
	WB	L	359	69.3	E	0.89	**247**	179	68.5	E	0.76	206	(0.8)	-1%	Same	-15%	(41)	-17%
		TR	40	6.6	A	0.06	25	40	41.8	D	0.09	65	35.2	533%	Worse	50%	40	160%
		Appr	-	63.0	E	-	-	-	63.7	E	-	-	0.7	1%	Same	-	-	-
	SB	TL	635	17.4	B	0.43	224	316	9.1	A	0.34	183	(8.3)	-48%	Better	-21%	(41)	-18%
		R	11	7.8	A	0.02	10	11	4.9	A	0.01	8	(2.9)	-37%	Same	-50%	(2)	-20%
		Appr	-	17.2	B	-	-	-	9.0	A	-	-	(8.2)	-48%	Better	-	-	-
	Intersection			28.6	C	-	-		22.6	C	-	-	(6.0)	-21%	Same	-	-	-

Note:

** Queue lengths shown in bold may extend longer at times.*

As can be from **Table 5A**, the following key observations are made with respect to the projected operations at the intersection considering the record of design (ROD):

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'B' to LOS 'C'.
- The westbound left turn lane group is projected to operate at LOS 'E' during the 2030 peak period and 2040 peak period respectively
- All other lane groups across all three years are projected to operate at LOS 'B' or better.

Considering the modified traffic circulation due to the proposed ramp configurations under the modified alternative in conjunction with the aforementioned modified signal timings, the following key observations are noted:

- Across all three years, the overall level of service for the intersection is projected to remain within the range of from LOS 'B' to LOS 'C'.
- The westbound left turn lane group is still projected to operate at LOS 'E' during the 2030 peak period and 2040 peak period respectively
- The level of service for the eastbound through/right turn lane group is projected to degrade from LOS 'A' albeit to still acceptable levels of LOS 'B' and LOS 'C' during the 2030 and 2040 peak periods respectively.

The SYNCHRO output MOE reports for all three years are included in **Appendix 'H'.**

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4.5.2 NE 14th Street at NE 1st Avenue

The operational analysis performed for ROD utilized design peak hour turning movements as developed in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* signal timing information from that study which are depicted in **Figure 7B** of this report. For the projected traffic conditions associated with the modified concept design developed by BCC, the design peak hour turning movements were adjusted to reflect the traffic diversions that are anticipated due to the reconfiguration in the on-ramp access that is proposed as part of that design. Turning movements anticipated to be affected by these diversions include increased eastbound through movement, and decreased westbound through movement compared to the traffic circulation associated with the approved design. No modifications to the signal timing plans were necessary to accommodate the anticipated change in traffic patterns at the intersection due to these diversions for the affected periods. **Table 5B** on the following page presents detailed summaries and comparisons of the MOEs of the modified alternative versus approved conditions.

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Table 5B: NE 14th Street at NE 1st Avenue SYNCHRO Results

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2020 PEAK	EB	LT	114	32.1	C	0.23	56	399	32.4	C	0.69	172	0.3	1%	Same	200%	116	207%
		Appr	-	32.1	C	-	-	-	32.4	C	-	-	0.3	1%	Same	-	-	-
	WB	TR	354	38.3	D	0.66	141	220	31.4	C	0.32	78	(6.9)	-18%	Better	-52%	(63)	-45%
		Appr	-	38.3	D	-	-	-	31.4	C	-	-	(6.9)	-18%	Better	-	-	-
	NB	LTR	820	0.8	A	0.29	10	820	0.9	A	0.30	10	0.1	13%	Same	3%	0	0%
		Appr	-	0.8	A	-	-	-	0.9	A	-	-	0.1	13%	Same	-	-	-
	Intersection			12.6	B	-	-		13.1	B	-	-	0.5	4%	Same	-	-	-
2030 PEAK	EB	LT	132	28.8	C	0.25	53	461	40.8	D	0.74	183	12.0	42%	Worse	196%	130	245%
		Appr	-	28.8	C	-	-	-	40.8	D	-	-	12.0	42%	Worse	-	-	-
	WB	TR	409	46.1	D	0.71	104	253	29.8	C	0.38	**41**	(16.3)	-35%	Better	-46%	(63)	-61%
		Appr	-	46.1	D	-	-	-	29.8	C	-	-	(16.3)	-35%	Better	-	-	-
	NB	LTR	948	0.4	A	0.34	2	948	0.4	A	0.35	2	0.0	0%	Same	3%	0	0%
		Appr	-	0.4	A	-	-	-	0.4	A	-	-	0.0	0%	Same	-	-	-
	Intersection			14	B	-	-		14.7	B	-	-	0.7	5%	Same	-	-	-
2040 PEAK	EB	LT	153	27.6	C	0.27	55	534	40.8	D	0.78	224	13.2	48%	Worse	189%	169	307%
		Appr	-	27.6	C	-	-	-	40.8	D	-	-	13.2	48%	Worse	-	-	-
	WB	TR	473	48.0	D	0.74	118	293	32.0	C	0.41	60	(16.0)	-33%	Better	-45%	(58)	-49%
		Appr	-	48.0	D	-	-	-	32.0	C	-	-	(16.0)	-33%	Better	-	-	-
	NB	LTR	1097	0.5	A	0.40	3	1097	0.6	A	0.42	3	0.1	20%	Same	5%	0	0%
		Appr	-	0.5	A	-	-	-	0.6	A	-	-	0.1	20%	Same	-	-	-
	Intersection			14.4	B	-	-		15.1	B	-	-	0.7	5%	Same	-	-	-

Note:

** Queue lengths shown in bold may extend longer at times.*

As can be from **Table 5B**, the following key observations are made with respect to the projected operations at the intersection considering the record of design (ROD):

- Across all three years, an overall level of service for the intersection of LOS 'B' is projected.
- The westbound through/right lane group is projected to operate at LOS 'D' during the peak periods across all three years
- All other lane groups across all three years are projected to operate at LOS 'C' or better.

Considering the modified traffic circulation due to the proposed ramp configurations under the modified alternative, the following key observations are noted:

- Across all three years, the overall level of service for the intersection is projected to remain the same at LOS 'B'.

- During the 2030 and 2040 peak periods, the level of service for the eastbound left/through lane group is projected to degrade from LOS 'C' albeit to the still acceptable LOS 'D'.
- Across all three periods, the level of service for the westbound through/right turn group is projected to improve from LOS 'D' to LOS 'C' due to the projected reduction in traffic demand on that approach due to the modified alternative

The SYNCHRO output MOE reports for all three years are included in **Appendix 'H'.**

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4.5.3 NE 14th Street at NE 2nd Avenue

The operational analysis performed for ROD utilized design peak hour turning movements as developed in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* signal timing information from that study which are depicted in **Figure 7C** of this report. For the projected traffic conditions associated with the modified concept design developed by BCC, the design peak hour turning movements were adjusted to reflect the traffic diversions that are anticipated due to the reconfiguration in the on-ramp access that is proposed as part of that design. Turning movements anticipated to be affected by these diversions include decreased southbound left turn movement, increased southbound through movement, increased westbound left turn movement, decreased westbound through movement, decreased northbound left turn movement and increased eastbound right turn movement compared to the traffic circulation associated with the approved design. The signal timing plans modified to accommodate the anticipated change in traffic patterns at the intersection due to these diversions for the affected periods are depicted in **Figure 7G**. Only the phase splits were adjusted and no change was made to the signal cycle length. A change in the lane utilization on the eastbound approach will be necessary to better accommodate the new traffic circulation pattern during the 2030 and 2040 peak periods. It is proposed to change the lane utilization on the eastbound approach from an exclusive left lane plus a shared through/right turn lane to an exclusive right turn lane plus a shared through left turn lane. In addition, it is proposed to add an exclusive left turn lane to the southbound approach and reconfigure the remaining southbound lanes to include one through plus a though/right turn lane to further accommodate the projected traffic demands on the southbound approach during the 2030 and 2040 peak periods.

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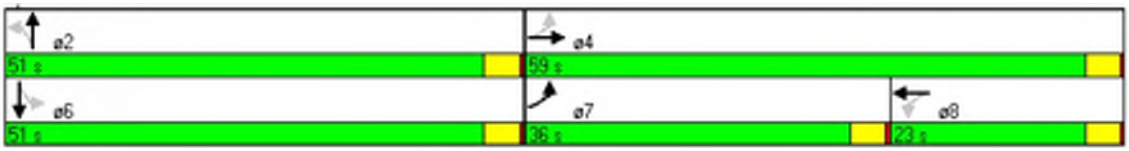
Figure 7G: MA Signal Timing & Phasing – NE 14th St. at NE 2nd Ave

2020 Peak

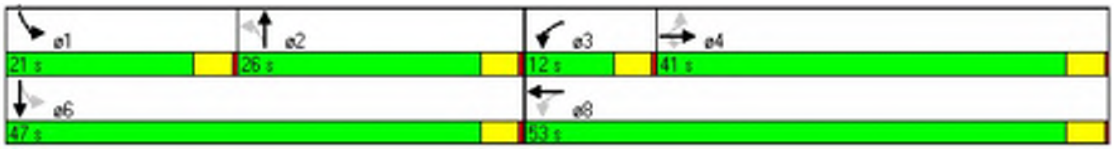


Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 90 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2 & Ø6*	*Ø4 & Ø7*	*Ø4 & Ø8*
Green	*47 (20)*	*32 (20)*	*19 (20)*
Yellow	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*
Split	51	36	23

2030 Peak

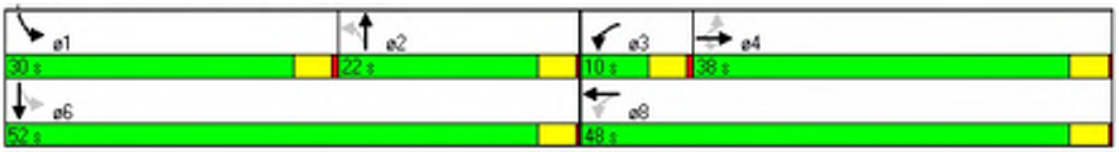


Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø1 & Ø6*	*Ø2 & Ø6*	*Ø3 & Ø8*	*Ø4 & Ø8*
Green	*17 (8)*	*22 (8)*	*8(0)*	*37 (20)*
Yellow	*3.5*	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*	*0.5*
Split	21	26	12	41

2040 Peak



Notes:
1. Grayed out arrows denote permissive movements.
2. Cycle length = 100 seconds
3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø1 & Ø6*	*Ø2 & Ø6*	*Ø3 & Ø8*	*Ø4 & Ø8*
Green	*26 (20)*	*18 (8)*	*6 (0)*	*34 (20)*
Yellow	*3.5*	*3.5*	*3.5*	*3.5*
Red	*0.5*	*0.5*	*0.5*	*0.5*
Split	30	22	10	38

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Table 5C on the following page presents detailed summaries and comparisons of the MOEs of the modified alternative versus approved conditions.

Table 5C: NE 14th Street at NE 2nd Avenue SYNCHRO Results

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2020 PEAK	EB	L	8	14.0	B	0.01	12	8	14.0	B	0.02	12	0.0	0%	Same	100%	0	0%
		TR	235	17.1	B	0.28	156	412	23.0	C	0.65	370	5.9	35%	Worse	132%	214	137%
		Appr	-	17.0	B	-	-	-	22.9	C	-	-	5.9	35%	Worse	-	-	-
	WB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LTR	99	70.0	E	0.95	**222**	61	67.9	E	0.95	**221**	(2.1)	-3%	Same	0%	(1)	0%
		Appr	-	70.0	E	-	-	-	67.9	E	-	-	(2.1)	-3%	Same	-	-	-
	NB	LTR	239	20.7	C	0.33	113	258	19.9	B	0.28	106	(0.8)	-4%	Better	-15%	(7)	-6%
		Appr	-	20.7	C	-	-	-	19.9	B	-	-	(0.8)	-4%	Better	-	-	-
	SB	LTR	641	70.5	E	1.05	**594**	922	67.8	E	1.04	**594**	(2.7)	-4%	Same	-1%	0	0%
		Appr	-	70.5	E	-	-	-	67.8	E	-	-	(2.7)	-4%	Same	-	-	-
	Intersection			56	E	-	-		50.9	D	-	-	(5.1)	-9%	Better	-	-	-

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2030 PEAK	EB	LT	-	-	-	-	-	281	30.8	C	0.46	273	-	-	-	-	-	-
		R	-	-	-	-	-	329	27.1	C	0.56	262	-	-	-	-	-	-
		L	9	18.6	B	0.02	13	-	-	-	-	-	-	-	-	-	-	-
		TR	272	22.9	C	0.34	188	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	22.8	C	-	-	-	28.8	C	-	-	6.0	26%	Same	-	-	-
	WB	L	161	99.4	F	1.05	**155**	204	27.0	C	0.52	**125**	(72.4)	-73%	Better	-50%	(30)	-19%
		TR	114	53.1	D	0.94	**188**	71	12.9	B	0.28	**86**	(40.2)	-76%	Better	-70%	(102)	-54%
		Appr	-	70.3	E	-	-	-	19.6	B	-	-	(50.7)	-72%	Better	-	-	-
	NB	LTR	277	7.4	A	0.41	45	298	24.8	B	0.53	106	17.4	235%	Worse	29%	61	136%
		Appr	-	7.4	A	-	-	-	24.8	B	-	-	17.4	235%	Worse	-	-	-
	SB	L	-	-	-	-	-	226	25.0	C	0.58	162	-	-	-	-	-	-
		TR	-	-	-	-	-	840	27.3	C	0.75	374	-	-	-	-	-	-
		LTR	741	139.7	F	1.23	**687**	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	139.7	F	-	-	-	26.9	C	-	-	(112.8)	-81%	Better	-	-	-
	Intersection			91.5	F	-	-		25.8	C	-	-	(65.7)	-72%	Better	-	-	-

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2040 PEAK	EB	LT	-	-	-	-	-	326	37.2	D	0.59	316	-	-	-	-	-	-
		R	-	-	-	-	-	381	37.6	D	0.73	299	-	-	-	-	-	-
		L	11	11.9	B	0.02	10	-	-	-	-	-	-	-	-	-	-	-
		TR	315	17.8	B	0.40	190	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	17.6	B	-	-	-	37.4	D	-	-	19.8	113%	Worse	-	-	-
	WB	L	186	178.6	F	1.26	**248**	236	48.8	D	0.81	**147**	(129.8)	-73%	Better	-36%	(101)	-41%
		TR	132	93.7	F	1.09	**270**	82	16.2	B	0.36	**94**	(77.5)	-83%	Better	-67%	(176)	-65%
		Appr	-	125.3	F	-	-	-	31.6	C	-	-	(93.7)	-75%	Better	-	-	-
	NB	LTR	321	7.0	A	0.51	61	345	22.8	C	0.56	132	15.8	226%	Worse	10%	71	116%
		Appr	-	7.0	A	-	-	-	22.8	C	-	-	15.8	226%	Worse	-	-	-
	SB	L	-	-	-	-	-	262	22.5		0.61	171	-	-	-	-	-	-
		TR	-	-	-	-	-	971	25.2		0.78	418	-	-	-	-	-	-
		LTR	857	230.5	F	1.44	**845**	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	230.5	F	-	-	-	24.7	C	-	-	(205.8)	-89%	Better	-	-	-
	Intersection			149.5	F	-	-		28.5	C	-	-	(121.0)	-81%	Better	-	-	-

Note:

** Queue lengths shown in bold may extend longer at times.*

As can be from **Table 5C**, the following key observations are made with respect to the projected operations at the intersection considering the record of design (ROD):

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'E' to LOS 'F'.
- The levels of service on the westbound approach and southbound approach are projected to be LOS 'E' during the 2020 peak period.
- During the 2030 peak period, the levels of service on the westbound and southbound approaches are projected to be LOS 'E' and LOS 'F' respectively.
- The level of service on the westbound approach and southbound approach is projected to be LOS 'F' during the 2040 peak period.

Considering the modified traffic circulation due to the proposed ramp configurations under the modified alternative in conjunction with the aforementioned modified signal timings and geometric improvements for the 2030 and 2040 peak periods, the following key observations are noted:

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'C' to LOS 'C.'
- The level of service on the westbound approach is projected to improve from LOS 'E' to LOS 'B' and from LOS 'F' to LOS 'C' during the 2030 and 2040 peak periods respectively.
- The level of service on the southbound approach is projected to improve from LOS 'F' to LOS 'C' during the 2030 and 2040 peak periods respectively.

The SYNCHRO output MOE reports for all three years are included in **Appendix 'H'.**

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4.5.4 NE 13th Street at NE 2nd Avenue

The operational analysis performed for ROD utilized design peak hour turning movements as developed in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* signal timing information from that study which are depicted in **Figure 7D** of this report. For the projected traffic conditions associated with the modified concept design developed by BCC, the design peak hour turning movements were adjusted to reflect the traffic diversions that are anticipated due to the reconfiguration in the on-ramp access that is proposed as part of that design. Turning movements anticipated to be affected by these diversions include increased southbound right turn movement, decreased westbound right turn movement, decreased northbound through movement and increased northbound left turn movement compared to the traffic circulation associated with the approved design. No modifications to the signal timing plans were proposed to accommodate the anticipated change in traffic patterns at the intersection due to these diversions for the affected periods. However, it is proposed to add a lane to the southbound approach and reconfigure the lane utilization to include dual right turn lanes and one through lane. The dual right turn lane configuration is anticipated to better accommodate the increased right turn demand during the peak periods of all three years which is significant. **Table 5D** on the following page presents detailed summaries and comparisons of the MOEs of the modified alternative versus approved conditions.

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Table 5D: NE 13th Street at NE 2nd Avenue SYNCHRO Results

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2020 PEAK	WB	LTR	344	20.3	C	0.47	121	348	20.4	C	0.47	122	0.1	0%	Same	0%	1	1%
		Appr	-	20.3	C	-	-	-	20.4	C	-	-	0.1	0%	Same	-	-	-
	NB	LT	214	13.8	B	0.11	92	214	14.0	B	0.11	93	0.2	1%	Same	0%	1	1%
		Appr	-	13.8	B	-	-	-	14.0	B	-	-	0.2	1%	Same	-	-	-
	SB	T	-	-	-	-	-	248	7.8	A	0.24	96	-	-	-	-	-	-
		R	-	-	-	-	-	941	7.6	A	0.56	161	-	-	-	-	-	-
		TR	781	6.9	A	0.42	120	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	6.9	A	-	-	-	7.6	A	-	-	0.7	10%	Same	-	-	-
	Intersection			12.8	B	-	-		12.1	B	-	-	(0.7)	-5%	Same	-	-	-

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2030 PEAK	WB	LTR	397	9.7	A	0.38	83	402	9.8	A	0.38	84	0.1	1%	Same	0%	1	1%
		Appr	-	9.7	A	-	-	-	9.8	A	-	-	0.1	1%	Same	-	-	-
	NB	LT	247	2.9	A	0.15	28	247	3.0	A	0.17	29	0.1	3%	Same	13%	1	4%
		Appr	-	2.9	A	-	-	-	3.0	A	-	-	0.1	3%	Same	-	-	-
	SB	T	-	-	-	-	-	286	10.9	B	0.33	**79**	-	-	-	-	-	-
		R	-	-	-	-	-	1087	9.0	A	0.73	**103**	-	-	-	-	-	-
		TR	905	1.5	A	0.57	**15**	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	1.5	A	-	-	-	9.4	A	-	-	7.9	>200%	Same	-	-	-
	Intersection			4.7	A	-	-		8.8	A	-	-	4.1	87%	Same	-	-	-

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2040 PEAK	WB	LTR	460	35.1	D	0.67	**202**	465	35.2	D	0.67	**203**	0.1	0%	Same	0%	1	0%
		Appr	-	35.1	D	-	-	-	35.2	D	-	-	0.1	0%	Same	-	-	-
	NB	LT	286	5.8	A	0.14	62	286	6.0	A	0.15	63	0.2	3%	Same	7%	1	2%
		Appr	-	5.8	A	-	-	-	6.0	A	-	-	0.2	3%	Same	-	-	-
	SB	T	-	-	-	-	-	331	6.0	A	0.30	89						
		R	-	-	-	-	-	1258	11.2	B	0.75	286						
		TR	1044	2.1	A	0.55	**12**	-	-	-	-	-	-	-	-	-	-	-
		Appr	-	2.1	A	-	-	-	10.1	B	-	-	8.0	>200%	Worse	-	-	-
	Intersection			14.8	B	-	-		17	B	-	-	2.2	15%	Same	-	-	-

Note:

** Queue lengths shown in bold may extend longer at times.*

As can be from **Table 5D**, the following key observations are made with respect to the projected operations at the intersection considering the record of design (ROD):

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'A' to LOS 'B'.
- Across all three years, the projected levels of service for all lane groups is projected to range from LOS 'A' to LOS'D'.

Considering the modified traffic circulation due to the proposed ramp configurations under the modified alternative and the proposed geometric improvements, the following key observations are noted:

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'A' to LOS 'B'.
- Across all three years, the projected levels of service for all lane groups is projected to range from LOS 'A' to LOS'D'.

The SYNCHRO output MOE reports for all three years are included in **Appendix 'H'.**

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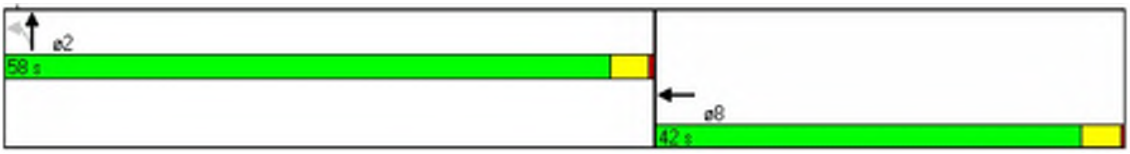
4.5.5 NE 13th Street at NE 1st Avenue

The operational analysis performed for ROD utilized design peak hour turning movements as developed in the approved *I-395 PD & E Study- Interchange Modification Report (IMR), July 2009* signal timing information from that study which are depicted in **Figure 7E** of this report. For the projected traffic conditions associated with the modified concept design developed by BCC, the design peak hour turning movements were adjusted to reflect the traffic diversions that are anticipated due to the reconfiguration in the on-ramp access that is proposed as part of that design. Turning movements anticipated to be affected by these diversions include increased westbound through movement compared to the traffic circulation associated with the approved design. The signal timing plans modified to accommodate the anticipated change in traffic patterns at the intersection due to these diversions for the affected periods are depicted in **Figure 7H**. Only the phase splits were adjusted and no change was made to the signal cycle length. A change in the lane utilization on the northbound approach will be necessary to better accommodate the new traffic circulation pattern during the 2030 and 2040 peak periods. It is proposed to change the lane utilization on the northbound approach from an exclusive left lane plus three through lanes to exclusive dual left turn lanes plus two through lanes. In addition, an additional through lane will be required on the westbound approach such that the total number of through lanes will increase from three to four.

Figure 7H: MA Signal Timing & Phasing – NE 13th St. at NE 1st Ave

2030 Peak



Notes:

1. Grayed out arrows denote permissive movements.

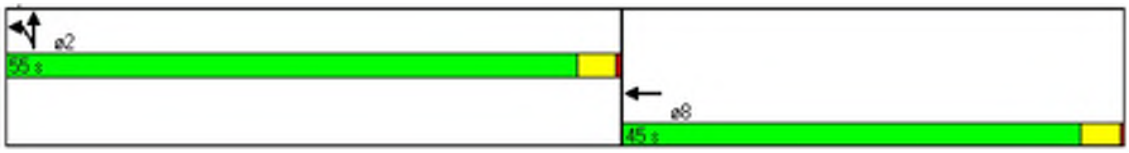
2. Cycle length = 100 seconds

3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø8*
Green	*54 (20)*	*38 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	58	42

2040 Peak



Notes:

1. Grayed out arrows denote permissive movements.

2. Cycle length = 100 seconds

3. Green - Actual Green (Minimum Green)

4.

Phases	*Ø2*	*Ø8*
Green	*55 (20)*	*41 (20)*
Yellow	*3.5*	*3.5*
Red	*0.5*	*0.5*
Split	55	45

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Table 5E below presents detailed summaries and comparisons of the MOEs of the modified alternative versus approved conditions.

Table 5E: NE 13th Street at NE 1st Avenue SYNCHRO Results

			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2020 PEAK	WB	LTR	812	34.2	C	0.65	208	1231	52.2	D	0.99	**373**	18.0	53%	**Worse**	52%	165	79%
		Appr	-	34.2	C	-	-	-	52.2	D	-	-	18.0	53%	**Worse**	-	-	-
	NB	L	1039	45.3	D	1.04	**926**	1039	46.6	D	1.04	**932**	1.3	3%	**Same**	0%	6	1%
		T	891	3.3	A	0.31	**41**	891	3.3	A	0.31	**41**	0.0	0%	**Same**	0%	0	0%
		Appr	-	25.9	C	-	-	-	26.6	C	-	-	0.7	3%	**Same**	-	-	-
	Intersection			28.4	C	-	-		36.6	D	-	-	8.2	29%	**Worse**	-	-	-
			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2030 PEAK	WB	LTR	939	35.1	D	0.72	275	1424	35.6	D	0.83	409	0.5	1%	**Same**	15%	134	49%
		Appr	-	35.1	D	-	-	-	35.6	D	-	-	0.5	1%	**Same**	-	-	-
	NB	L	1202	113.5	F	1.21	**451**	1202	13.2	B	0.73	**194**	(100.3)	-88%	**Better**	-40%	(257)	-57%
		T	1030	4.5	A	0.36	**57**	1030	11.9	B	0.61	**167**	7.4	164%	**Worse**	69%	110	193%
		Appr	-	63.2	E	-	-	-	12.6	B	-	-	(50.6)	-80%	**Better**	-	-	-
	Intersection			54.8	D	-	-		21.6	C	-	-	(33.2)	-61%	**Better**	-	-	-
			Record of Decision (ROD)					Modified Alternative (MA)					MA vs ROD = Δ Change					
													Δ Delay				Δ 95% Queue	
	Lane Grou	Move-ment	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	Volume (vph)	Delay (s-veh)	LOS	v/c	95% Queue (ft)*	(s-veh)	%	Δ LOS	Δ v/c	Feet	%
2040 PEAK	WB	LTR	1086	45.2	D	0.81	268	1647	30.2	C	0.71	318	(15.0)	-33%	**Better**	-12%	50	19%
		Appr	-	45.2	D	-	-	-	30.2	C	-	-	(15.0)	-33%	**Better**	-	-	-
	NB	L	1390	207.5	F	1.42	**1309**	1390	39.6	D	0.89	**231**	(167.9)	-81%	**Better**	-37%	(1078)	-82%
		T	1191	5.4	A	0.42	**66**	1191	19.2	B	0.74	**203**	13.8	256%	**Worse**	76%	137	208%
		Appr	-	114.2	F	-	-	-	30.2	C	-	-	(84.0)	-74%	**Better**	-	-	-
	Intersection			93.7	F	-	-		30.2	C	-	-	(63.5)	-68%	**Better**	-	-	-

Note:

** Queue lengths shown in bold may extend longer at times.*

As can be from **Table 5E**, the following key observations are made with respect to the projected operations at the intersection considering the record of design (ROD):

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'C' to LOS 'F' with the projected LOS 'F' occurring during the 2040 peak period.
- The northbound left turn lane group is projected to operate at LOS 'F' during the 2030 and 2040 peak periods.
- All other lane groups across all three years are projected to operate at LOS 'E' or better.

Considering the modified traffic circulation due to the proposed ramp configurations under the modified alternative in conjunction with the aforementioned modified signal timings and change in lane utilization on the northbound approach for the 2030 and 2040 peak periods and the proposed additional westbound through lane, the following key observations are noted:

- Across all three years, the overall level of service for the intersection is projected to range from LOS 'C' to LOS 'F' with the projected LOS 'F' occurring during the 2040 peak period.
- The level of service for the northbound left turn lane group is projected to improve from LOS 'F' to LOS 'D' during the 2030 and 2040 peak periods.
- The level of service for the northbound through lane group is projected to degrade from LOS 'A' albeit to a still acceptable LOS 'B'.

The SYNCHRO output MOE reports for all three years are included in **Appendix 'H'.**

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5.0 ASSESSMENT OF FHWA'S EIGHT POLICY POINTS

The following assessments of the FHWA'S Eight Policy Points on Access to the Interstate System were performed:

Policy:
It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21st Century by assuring that it provides the highest level of service in terms of safety and mobility. Full control of access along the Interstate mainline and ramps, along with control of access on the crossroad at interchanges, is critical to providing such service. Therefore, FHWA's decision to approve new or revised access points to the Interstate System must be supported by substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements:

Considerations and Requirements:

1. The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a)).

   Assessment: As presented in the reanalysis report, the modified recommended alternative represents a significant improvement in traffic operations over the "No Build" alternative particularly in the design year where major deficiencies along various segments on I-395 would develop as a result of the increased future traffic demand on the existing roadway infrastructure. The traffic reanalysis of the modified recommended alternative demonstrates that acceptable levels of service can be maintained during the design year on I-395 and adjacent roadway segments. Further, relative to the approved design in the Record of Decision, there are improvements to the surface street network to facilitate improved operations at the I-395 on-ramp access point. However the additional improvements to mainline I-395 are necessary because improvements to the surface street network alone will not meet the demands of the design year traffic.

2. The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a)).

   Assessment: As noted in the original IMR report prepared in 2009, the need for improvements is based on a combination of substandard facility conditions, and the interaction with other planned facility improvements (such as the SR 836 improvement project to the west and the Port of Miami Tunnel project to the east) impacting the project area. The objectives of this project were to increase capacity over the existing infrastructure to mitigate future traffic congestion, improve safety by alleviating existing deficiencies, improve the existing interstate access connection,

establish lane continuity, reduce evacuation time from Miami Beach, address structurally deficient and functionally obsolete bridges etc. Therefore, considering the aforementioned needs as stated, it can be understood that more robust infrastructure improvements are needed beyond what TSM alternatives will provide. Finally, TSM Alternatives were fully vetted and discarded during the PD&E process as non-viable given the needs of the study corridor.

3. An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

   Assessment: As presented in the traffic reanalysis report, the modified recommended alternative represents a significant improvement in traffic operations over the "No Build" alternative particularly in the design year where major deficiencies along various segments on I-395 would develop as a result of the increased future traffic demand on the existing roadway infrastructure. The traffic reanalysis of the modified recommended alternative demonstrates that acceptable levels of service can be maintained during the design year on I-395 and adjacent roadway segments. The design plans that have been prepared include a comprehensive signing plan for the study corridor and are being submitted as a separate document. Further, the proposed change in design will lead to a reduction in traffic congestion, improved sight distance, improved merge/diverge distances, lane continuity throughout with a commensurate reduction in lane changes, all of which are anticipated to improve the safety within the project corridor relative to the approved design in the record of decision.

4. The proposed access connects to a public road only and will provide for all traffic movements. Less than ``full interchanges'' may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)).

   Assessment: The IMR proposes no new interchanges along I-395. The existing interchange as modified will continue to provide access to public roads. The modified

interchange will be a "full interchange" with ramp connections to accommodate all movements at the interchange. The proposed modified access is generally designed to meet current standards with design exceptions where noted in the design plans.

5. The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93.

   Assessment: As stated in the original I-395 PD&E Study prepared in 2008, the proposed improvements are consistent with the FIHS 10 Year Feasibility Plan, the Long Range Transportation Plan of the Miami-Dade Metropolitan Planning Organization (MPO) as well as their Transportation Improvement Plan (TIP), and the I-95 Master Plan.

6. In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111).

   Assessment: Given the length of the I-395 study corridor (i.e. less than 1.5 miles) it is not anticipated that there will be any requests for additional interchanges in the future. Therefore, this consideration/requirement is deemed duly satisfied.

7. When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d)).

   Assessment: The proposed improvements along the I-395 corridor are required to accommodate the anticipated growth in the region and associated increase in transportation demand. The need for the Interstate access modifications was identified as part of the regional transportation planning process. The forecasted transportation demand was developed in accordance with this process and was based on approved land uses plans and planned transportation systems improvements for the region.

8. The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing (23 CFR 771.111).

Assessment: The modified recommended alternative is not anticipated to lead to a significant change in the environmental impacts that were evaluated in the I-395 PD&E study for the recommended alternative approved in the record of decision. Furthermore, the FDOT is in the process of preparing a environmental reevaluation of the modified alternative for FHWA approval that will be submitted as a separate document.

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6.0 CONCLUSION / RECOMMENDATIONS

The objective of this reanalysis, was to within a limited scope; assess the relative changes in traffic operations between the "Recommended Alternative (Record of Decision)" and the now proposed "Modified Recommended Alternative with Additional Lanes". The "Recommended Alternative (Record of Decision)" was defined in the I-395 PD&E Study and preliminary engineering report prepared by Metric Engineering, Inc. in July, 2009. Based on the available data (contained in the original analysis prepared by Metric Engineering, Inc.) and the findings of this reanalysis, the "Modified Recommended Alternative with Additional Lanes" will improve upon the projected operational performance of the "Recommended Alternative (Record of Decision)" due to the increased capacity that will result from the additional lanes. Both alternatives represent a significant improvement in operations over the "No Build" alternative particularly in 2040 where major deficiencies along various segments on I-395 would develop as a result of the increased future traffic demand on the existing roadway infrastructure. It should be noted that in 2040 the westbound on-ramp connecting to the mainline of I-395 westbound is projected to operate at LOS 'D' which while acceptable, indicates that the performance of this ramp could be susceptible to significant changes in the future land use patterns as a result of any potential redevelopment within the project environs.

The accompanying operational analysis of the surface street intersections that are anticipated to be impacted by the modified traffic circulation patterns that would result from the modified alternative indicate that the following localized improvements may need to be coordinated in conjunction with the City of Miami and/or Miami-Dade County. It should be noted that these improvements would serve to mitigate some of the deficiencies that the affected intersections that were already projected based on an analysis of the conditions for the record of decision:

NE 14th Street at N Miami Avenue:

- Modify future intersection signal timing plans for the 2030 and 2040 peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative. The signal timing plan proposed for the 2020 Peak period in the ROD is sufficient to accommodate the traffic circulation patterns for the modified alternative during the 2020 peak period.

NE 14th Street at NE 2nd Avenue:

- Modify future intersection signal timing plans for all peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative.
- Reconfigure the lane utilization on the eastbound approach to include an exclusive right turn lane plus a shared through/left turn lane to accommodate the modified traffic circulation patterns during the 2030 and 2040 peak periods.
- Add exclusive left turn lane to the southbound approach and reconfigure the remaining lanes to one through lane and one through right turn lane to accommodate modified circulation traffic patterns during the 2030 and 2040 peak periods.

NE 13th Street at NE 2nd Avenue:

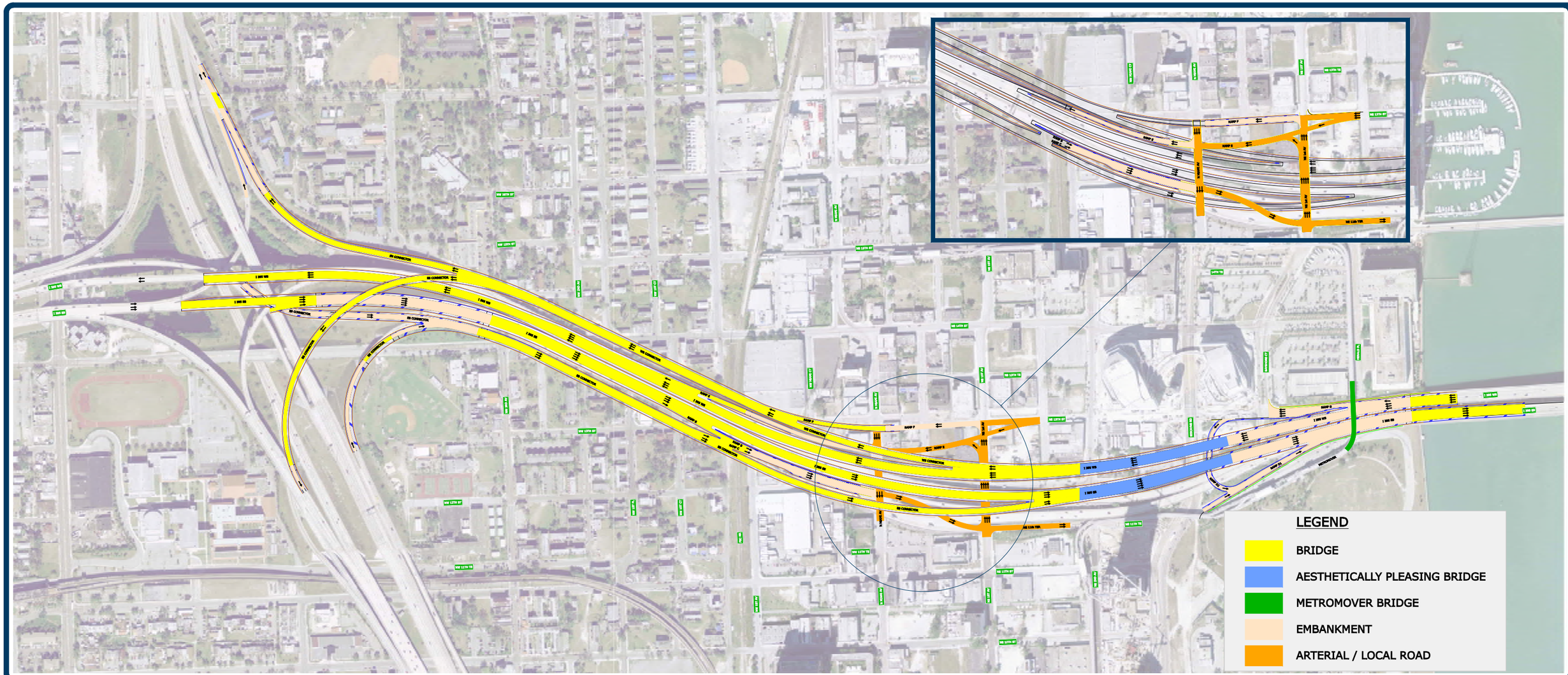
- Add a lane to the southbound approach and reconfigure the lane utilization to include dual right turn lanes and one through lane. The dual right turn lane configuration is

anticipated to better accommodate the increased right turn demand during the peak periods of all three years.

NE 13th Street at NE 1st Avenue:

- Modify future intersection signal timing plans for the 2030 and 2040 peak periods proposed in the ROD to accommodate modified traffic circulation pattern that will result from the modified alternative. The signal timing plan proposed for the 2020 Peak period in the ROD is sufficient to accommodate the traffic circulation patterns for the modified alternative during the 2020 peak period.
- Change lane utilization on the northbound approach to better accommodate the new traffic circulation pattern during the 2030 and 2040 peak periods to include exclusive dual left turn lanes plus two through lanes.
- Add through lane on the westbound approach such that the total number of through lanes will increase from three to four.

APPENDIX A – BCC CONCEPT DIAGRAM



1"=100'

ROADWAY LAYOUT

IN ASSOCIATION WITH:

TYLIN INTERNATIONAL

SHEET # 1

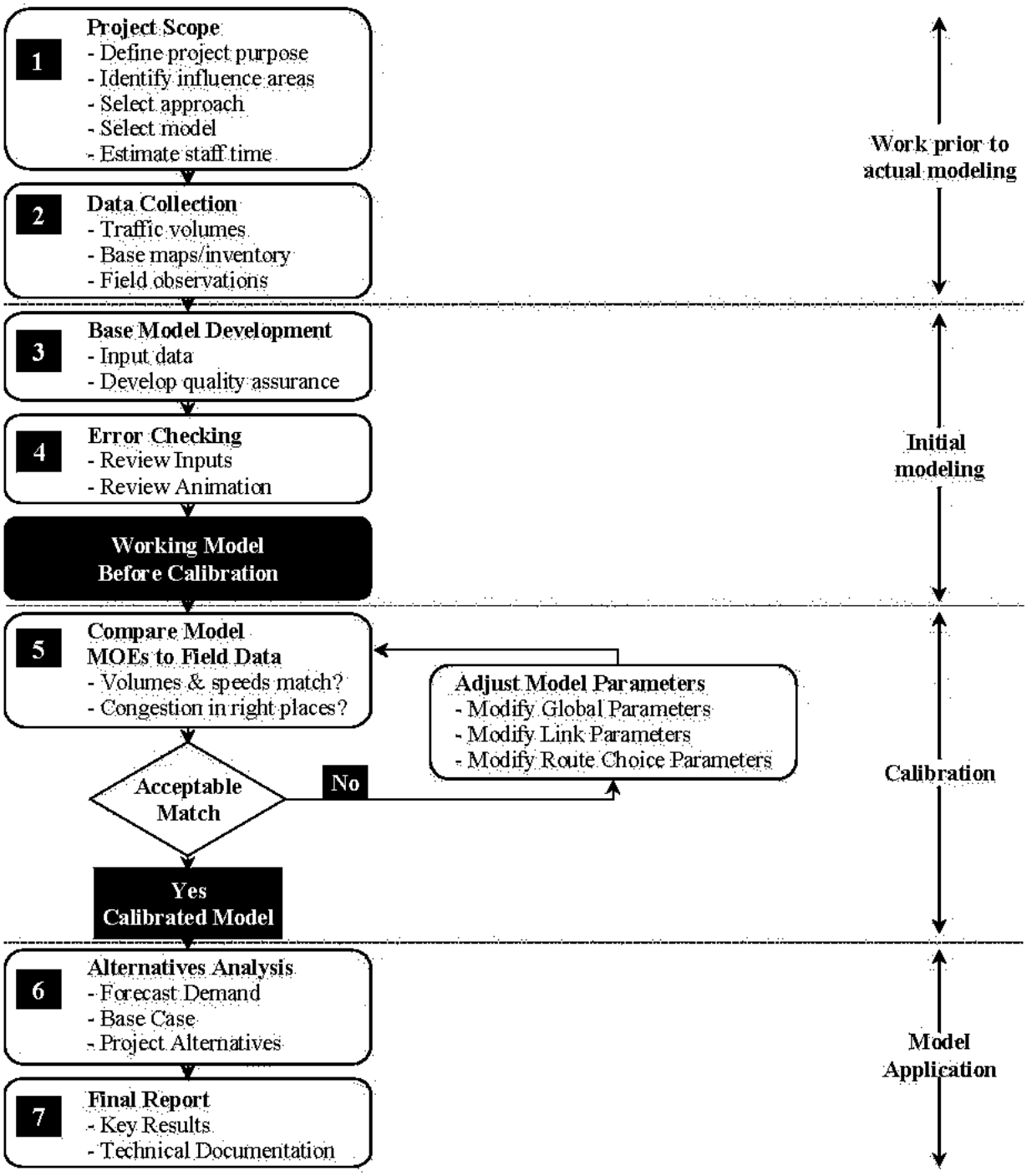
APPENDIX B – EXCERPT OF ORIGINAL MODEL CALIBRATION

The NW/NE 14th Street corridor is generally operating at acceptable levels of service (B through D) west of North Miami Avenue during the a.m. peak hour and west of NE 2nd Avenue during the p.m. peak hour. The segment east of North Miami Avenue generally fails at level of service F during the morning peak hour.

3.5.4 Freeway Analysis

CORSIM simulation was used to provide a systematic and comprehensive freeway analysis within the project's influence area. All freeway components (i.e. basic, ramp and weaving sections) were included in the evaluation. While Highway Capacity Manual (HCM) analyzes the system performance for each freeway facility separately, the simulation method evaluates the entire system performance without losing the complicated interactions among facility elements. Although HCM is accepted as a standard analysis tool for freeway analysis and relatively simple data preparation, CORSIM was selected to investigate the system performance. However, the CORSIM model requires many different types of parameters to describe traffic flow characteristics and the default variables sometimes cannot replicate the existing condition satisfactorily. Therefore, calibration is required to obtain a valid statistical model as shown in Figure 3-16.

The calibration procedure entails running the model with the different combinations of parameters and conducting statistical tests on selected MOEs. Average volumes after 30 multiple runs were compared to field traffic counts. Seventeen (17) internal links were selected out of a total of 58 freeway segments. The initially determined list of parameters and their ranges are shown in Table 3-4. Note that an Erlang distribution and the default fleet information were used to calibrate the model. Multi Run Many Cases scripts were used to obtain calibration results as shown in Table 3-5.



Developed by the FHWA Traffic Analysis Tools Team and later adapted from *Advanced Corsim Training Manual*, Short, Elliott, Hendrickson, Inc., Minnesota Department of Transportation, September 2003.

Figure 3-16 Corsim Model Development and Application Process

Table 3-4 CORSIM Calibration Parameters

Parameter	Value Range
Exit Ramp Reaction Points	2500+1000*(N-2), N = Number of Lanes
On-Ramp Speed Trigger	35, 40, 45, 50 (mph)
Minimum separation for veh. Generation	1.4,1.5, 1.6 (sec)

Table 3-5 CORSIM Calibration for Selected Link Volume

Location	Rvol[1)]	1435[2)]	1440	1445	1450	1535	1540	1545	1550	1635	1640	1645	1650
I-395 WB (MacArthur BR - Biscayne)	2041	2041	2043	2035	2034	2038	2049	2039	2043	2034	2042	2043	2041
I-395 EB (Biscayne - MacArthur BR)	2137	2344	2346	2336	2349	2328	2334	2335	2335	2347	2350	2335	2345
SR-836 WB (Midtown - NW 12 Ave)	3826	3998	4012	3990	3971	4006	4001	3984	4003	3999	3997	3999	3984
SR-836 EB (NW 12 Ave - Midtown)	4726	4637	4637	4634	4638	4637	4637	4635	4637	4638	4639	4636	4637
I-95 SB (I195 - Midtown)	9274	9077	9086	9044	9061	9091	9092	9063	9065	9082	9101	9075	9072
I-95 SB (NW 10 ST - NW 8 ST)	6815	6937	6924	6895	6904	6933	6930	6925	6898	6912	6916	6915	6916
I-95 NB (Midtown - I-195)	5195	4790	4788	4796	4797	4784	4802	4792	4789	4792	4791	4780	4789
I-95 NB (NW 8 ST - NW 10 ST)	3414	3416	3420	3416	3410	3417	3416	3406	3427	3414	3407	3415	3415
I-95 NB to SR 836 WB Ramp	1701	1708	1703	1703	1689	1707	1691	1695	1714	1692	1702	1703	1692
SR-836 EB to NB I-95 Ramp	1812	1666	1656	1667	1667	1670	1665	1667	1667	1660	1677	1667	1657
I-395 WB to I-95 NB Ramp	912	1169	1167	1168	1163	1160	1164	1162	1165	1165	1160	1161	1165
I-95 NB to I-395 EB Ramp	1071	1070	1063	1067	1075	1067	1068	1079	1057	1069	1079	1071	1069
I-395 WB to NE 13 ST Ramp	700	698	697	704	706	702	690	700	696	705	698	696	699
Biscayne Blvd to I-395 EB Ramp	267	364	364	364	364	364	364	363	365	364	364	364	364
I-395 WB to I-95 SB Ramp	1304	1521	1511	1508	1513	1516	1519	1514	1513	1508	1523	1518	1515
I-95 SB to NW 8 ST Ramp	1263	1213	1224	1229	1239	1228	1230	1235	1234	1228	1234	1238	1230
I-95 SB to SR 836 WB Ramp	2148	1990	1996	1969	1972	1986	1990	1973	1978	1993	1985	1983	1980

1) 2004Traffic Count
2) First two digits denote Minimum separation for vehicle generation * 10 and last two digits denote on-ramp speed trigger, for example 1445 means 1.4 sec of minimum separation for vehicle generation and 45 mph on-ramp speed trigger.

After thirty runs of each parameter combination, it was found that a 1.6 sec minimum separation for vehicle generation and 45 mph on-ramp speed trigger had the minimum error value as shown in Table 3-6. All pertinent information regarding the Confidence Level (CL) has been included in Appendix B. This combination will be further investigated as the calibrated dataset.

Table 3-6 Selected Link Volume Error

Location	1435[2)]	1440	1445	1450	1535	1540	1545	1550	1635	1640	1645	1650
I-395 WB (MacArthur BR - Biscayne)	0.0%	0.1%	0.3%	0.3%	0.1%	0.4%	0.1%	0.1%	0.3%	0.0%	0.1%	0.0%
I-395 EB (Biscayne - MacArthur BR)	9.7%	9.8%	9.3%	9.9%	8.9%	9.2%	9.3%	9.3%	9.8%	10.0%	9.3%	9.7%
SR-836 WB (Midtown - NW 12 Ave)	4.5%	4.9%	4.3%	3.8%	4.7%	4.6%	4.1%	4.6%	4.5%	4.5%	4.5%	4.1%
SR-836 EB (NW 12 Ave - Midtown)	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.9%	1.9%
I-95 SB (I195 - Midtown)	2.1%	2.0%	2.5%	2.3%	2.0%	2.0%	2.3%	2.3%	2.1%	1.9%	2.1%	2.2%
I-95 SB (NW 10 ST - NW 8 ST)	1.8%	1.6%	1.2%	1.3%	1.7%	1.7%	1.6%	1.2%	1.4%	1.5%	1.5%	1.5%
I-95 NB (Midtown - I-195)	7.8%	7.8%	7.7%	7.7%	7.9%	7.6%	7.8%	7.8%	7.8%	7.8%	8.0%	7.8%
I-95 NB (NW 8 ST - NW 10 ST)	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.4%	0.0%	0.2%	0.0%	0.0%
I-95 NB to SR 836 WB Ramp	0.4%	0.1%	0.1%	0.7%	0.4%	0.6%	0.4%	0.8%	0.5%	0.1%	0.1%	0.5%
SR-836 EB to NB I-95 Ramp	8.1%	8.6%	8.0%	8.0%	7.8%	8.1%	8.0%	8.0%	8.4%	7.5%	8.0%	8.6%
I-395 WB to I-95 NB Ramp	28.2%	28.0%	28.1%	27.5%	27.2%	27.6%	27.4%	27.7%	27.7%	27.2%	27.3%	27.7%
I-95 NB to I-395 EB Ramp	0.1%	0.7%	0.4%	0.4%	0.4%	0.3%	0.7%	1.3%	0.2%	0.7%	0.0%	0.2%
I-395 WB to NE 13 ST Ramp	0.3%	0.4%	0.6%	0.9%	0.3%	1.4%	0.0%	0.6%	0.7%	0.3%	0.6%	0.1%
Biscayne Blvd to MacArthur EB Ramp	36.3%	36.3%	36.3%	36.3%	36.3%	36.3%	36.0%	36.7%	36.3%	36.3%	36.3%	36.3%
I-395 WB to I-95 SB Ramp	16.6%	15.9%	15.6%	16.0%	16.3%	16.5%	16.1%	16.0%	15.6%	16.8%	16.4%	16.2%
I-95 SB to NW 8 ST Ramp	4.0%	3.1%	2.7%	1.9%	2.8%	2.6%	2.2%	2.3%	2.8%	2.3%	2.0%	2.6%
I-95 SB to SR 836 WB Ramp	7.4%	7.1%	8.3%	8.2%	7.5%	7.4%	8.1%	7.9%	7.2%	7.6%	7.7%	7.8%
Sum	1.291	1.285	1.274	1.272	1.263	1.282	1.262	1.289	1.273	1.264	1.258	1.273

Minimum Error Value

Volume Error Outside of Target Range

As shown on Table 3-6, most volume errors were within the FDOT suggested target ranges except for three locations: I-395 westbound to both I-95 southbound and I-95 northbound ramp and Biscayne Boulevard northbound to MacArthur eastbound ramp. Since the on-ramp volumes were not directly entered but CORSIM assigned a path for surface traffic based on the turning percentages encountered at each intersection, some discrepancies occurred.

It was found that the calibrated input parameters would have a capability to replicate not only traffic volume but also speed on several selected links as shown in Table 3-7.

Table 3-7 Speed Comparison between Field Data and Simulation

	Travel Time Data (sec)									Simulation	
Location	TSPD	Run#1	Run#2	Run#3	Run#4	Run#5	Run#6	Run#7	Run#8	SPEED	Error
I-95 SB to I-395 EB Ramp Before Merging I 95 NB Ramp	48.9	22	20	20	20	21	22			46.0	5.93%
I-95 NB/SB to NE 2nd Ave Ramp	50.7	36	33	36	37	37	32			53.1	4.73%
I-95 NB/SB to 2nd Ave Ramp Intersection	8.4	92	149	49	40	52	19			11.8	40.48%
I-95 SB to NW 8 ST Ramp	45.0	16	16	21	16	21	19	24	18	47.6	5.78%
I-95 SB to NW 8 ST Ramp Intersection	30.6	13	16	18	31	40	31	17	14	30.7	0.33%
I-95 SB Between SR-836 Off and I-395 EB Ramp)	48.4	12	14	14	14	14	14	19	16	52.8	9.09%
I-95 SB Between I-395 EB and NW 8 ST off Ramp	54.2	11	13	12	13	12	13	15	12	57.9	6.83%
I-95 SB Between NW 8 ST Off Ramp and SR-836 EB On Ramp	53.9	14	16	16	16	16	15	16	13	59.9	11.13%
I-95 SB Between SR-836 EB On Ramp and SW 7 ST Off Ramp	55.5	39	39	38	39	38	45	39	50	53.6	3.42%

Source: I-95 Managed Lanes: Evaluation of Potential Implementation to Downtown Miami Surface Street. 2007

Density is used to determine the Level of Service (LOS) of a freeway. While the average value of density is used for the basic segments, the ramp influence area density is used for the merge/diverge case as specified in the HCM, (i.e., density in lanes one and two). Corsim provides lane volumes and lane speeds. The lane density was then calculated by dividing volume by speed. Level of service was determined by comparing the calculated density with the density ranges specified in HCM Exhibits 23-2, 24-2 and 25-4 for basic segments, weaving segments and merge/diverged areas, respectively. According to Figure 3-17 both the I-95 and I-395 segments within the project limits are presently operating adequately.

CORSIM CALIBRATION

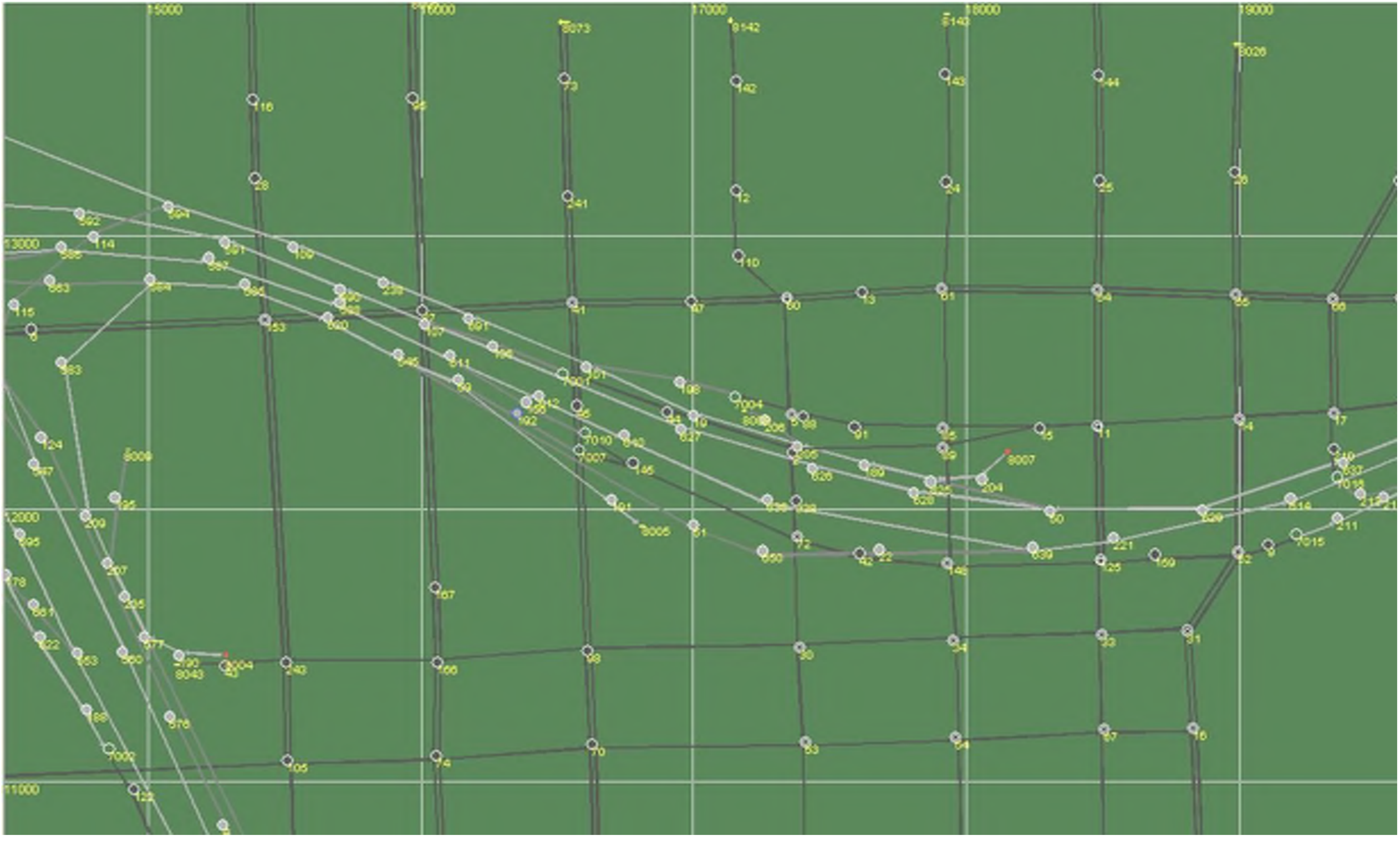
Location	Standard Deviation											
I-395 WB (MacArthur BR - Biscayne)	23.05	23.42	16.71	17.77	20.61	21.86	24.27	25.90	21.25	21.37	20.48	21.01
I-395 EB (Biscayne - MacArthur BR)	44.92	38.20	47.69	41.22	47.55	43.08	44.65	41.41	44.23	52.84	49.07	44.54
SR-836 WB (Midtown - NW 12 Ave)	61.38	62.08	60.11	59.09	61.55	44.08	54.24	54.95	55.30	57.02	46.36	53.22
SR-836 EB (NW 12 Ave - Midtown)	26.20	27.30	28.20	27.32	29.07	25.35	26.38	29.28	28.83	27.06	27.08	26.97
I-95 SB (I195 - Midtown)	74.59	67.39	72.02	79.67	65.93	63.91	76.30	74.42	70.00	67.66	70.55	68.76
I-95 SB (NW 10 ST - NW 8 ST)	66.91	73.80	77.78	82.25	65.60	60.48	79.26	92.03	56.85	83.39	70.99	74.03
I-95 NB (Midtown - I-195)	55.75	60.48	43.83	44.02	67.93	61.65	68.11	53.45	51.10	51.88	60.65	61.01
I-95 NB (NW 8 ST - NW 10 ST)	27.16	27.54	35.32	26.32	33.13	33.28	23.95	21.18	27.01	29.37	34.88	24.90
I-95 NB to SR 836 WB Ramp	31.08	38.00	35.88	26.76	43.36	28.82	33.57	29.70	35.17	29.65	30.91	35.18
SR-836 EB to NB I-95 Ramp	42.47	33.08	35.39	38.03	40.09	29.55	39.57	27.05	37.14	34.18	38.07	32.94
I-395 WB to I-95 NB Ramp	22.72	29.53	25.42	29.76	25.22	31.50	28.72	31.78	23.70	26.37	26.29	29.23
I-95 NB to I-395 EB Ramp	25.74	28.22	33.95	24.04	33.25	33.59	24.55	19.62	25.92	28.42	33.54	23.59
I-395 WB to NE 13 ST Ramp	23.26	21.89	18.33	17.68	21.34	21.40	24.11	23.62	20.00	22.64	20.04	21.70
Biscayne Blvd to I-395 EB Ramp	14.98	14.32	15.39	13.68	15.39	15.14	14.09	15.03	15.19	13.76	14.74	14.37
I-395 WB to I-95 SB Ramp	33.00	29.63	35.40	33.20	31.78	20.92	28.12	30.98	30.12	39.67	36.22	34.52
I-95 SB to NW 8 ST Ramp	32.49	37.06	42.78	30.87	29.63	31.07	29.54	28.79	37.91	30.20	33.90	37.77
I-95 SB to SR 836 WB Ramp	42.95	44.41	46.46	32.27	36.83	40.75	42.49	45.09	42.09	48.71	37.51	46.51

Location	95 % Confidence Interval											
I-395 WB (MacArthur BR - Biscayne)	8.25	8.38	5.98	6.36	7.37	7.82	8.69	9.27	7.60	7.65	7.33	7.52
I-395 EB (Biscayne - MacArthur BR)	16.07	13.67	17.07	14.75	17.02	15.42	15.98	14.82	15.83	18.91	17.56	15.94
SR-836 WB (Midtown - NW 12 Ave)	21.96	22.21	21.51	21.15	22.03	15.77	19.41	19.66	19.79	20.40	16.59	19.04
SR-836 EB (NW 12 Ave - Midtown)	9.38	9.77	10.09	9.78	10.40	9.07	9.44	10.48	10.32	9.68	9.69	9.65
I-95 SB (I195 - Midtown)	26.69	24.11	25.77	28.51	23.59	22.87	27.31	26.63	25.05	24.21	25.24	24.61
I-95 SB (NW 10 ST - NW 8 ST)	23.94	26.41	27.83	29.43	23.48	21.64	28.36	32.93	20.34	29.84	25.40	26.49
I-95 NB (Midtown - I-195)	19.95	21.64	15.68	15.75	24.31	22.06	24.37	19.13	18.28	18.57	21.70	21.83
I-95 NB (NW 8 ST - NW 10 ST)	9.72	9.85	12.64	9.42	11.85	11.91	8.57	7.58	9.67	10.51	12.48	8.91
I-95 NB to SR 836 WB Ramp	11.12	13.60	12.84	9.57	15.52	10.31	12.01	10.63	12.59	10.61	11.06	12.59
SR-836 EB to NB I-95 Ramp	15.20	11.84	12.67	13.61	14.35	10.57	14.16	9.68	13.29	12.23	13.62	11.79
I-395 WB to I-95 NB Ramp	8.13	10.57	9.10	10.65	9.03	11.27	10.28	11.37	8.48	9.44	9.41	10.46
I-95 NB to I-395 EB Ramp	9.21	10.10	12.15	8.60	11.90	12.02	8.78	7.02	9.27	10.17	12.00	8.44
I-395 WB to NE 13 ST Ramp	8.32	7.83	6.56	6.33	7.64	7.66	8.63	8.45	7.16	8.10	7.17	7.77
Biscayne Blvd to I-395 EB Ramp	5.36	5.13	5.51	4.90	5.51	5.42	5.04	5.38	5.44	4.93	5.28	5.14
I-395 WB to I-95 SB Ramp	11.81	10.60	12.67	11.88	11.37	7.49	10.06	11.09	10.78	14.19	12.96	12.35
I-95 SB to NW 8 ST Ramp	11.63	13.26	15.31	11.05	10.60	11.12	10.57	10.30	13.57	10.81	12.13	13.52
I-95 SB to SR 836 WB Ramp	15.37	15.89	16.62	11.55	13.18	14.58	15.20	16.14	15.06	17.43	13.42	16.64

Location	Margin of Error											
I-395 WB (MacArthur BR - Biscayne)	0.40%	0.41%	0.29%	0.31%	0.36%	0.38%	0.43%	0.45%	0.37%	0.37%	0.36%	0.37%
I-395 EB (Biscayne - MacArthur BR)	0.69%	0.58%	0.73%	0.63%	0.73%	0.66%	0.68%	0.63%	0.67%	0.80%	0.75%	0.68%
SR-836 WB (Midtown - NW 12 Ave)	0.55%	0.55%	0.54%	0.53%	0.55%	0.39%	0.49%	0.49%	0.49%	0.51%	0.41%	0.48%
SR-836 EB (NW 12 Ave - Midtown)	0.20%	0.21%	0.22%	0.21%	0.22%	0.20%	0.20%	0.23%	0.22%	0.21%	0.21%	0.21%
I-95 SB (I195 - Midtown)	0.29%	0.27%	0.28%	0.31%	0.26%	0.25%	0.30%	0.29%	0.28%	0.27%	0.28%	0.27%
I-95 SB (NW 10 ST - NW 8 ST)	0.35%	0.38%	0.40%	0.43%	0.34%	0.31%	0.41%	0.48%	0.29%	0.43%	0.37%	0.38%
I-95 NB (Midtown - I-195)	0.42%	0.45%	0.33%	0.33%	0.51%	0.46%	0.51%	0.40%	0.38%	0.39%	0.45%	0.46%
I-95 NB (NW 8 ST - NW 10 ST)	0.28%	0.29%	0.37%	0.28%	0.35%	0.35%	0.25%	0.22%	0.28%	0.31%	0.37%	0.26%
I-95 NB to SR 836 WB Ramp	0.65%	0.80%	0.75%	0.57%	0.91%	0.61%	0.71%	0.62%	0.74%	0.62%	0.65%	0.74%
SR-836 EB to NB I-95 Ramp	0.91%	0.71%	0.76%	0.82%	0.86%	0.64%	0.85%	0.58%	0.80%	0.73%	0.82%	0.71%
I-395 WB to I-95 NB Ramp	0.70%	0.91%	0.78%	0.92%	0.78%	0.97%	0.88%	0.98%	0.73%	0.81%	0.81%	0.90%
I-95 NB to I-395 EB Ramp	0.86%	0.95%	1.14%	0.80%	1.12%	1.13%	0.81%	0.66%	0.87%	0.94%	1.12%	0.79%
I-395 WB to NE 13 ST Ramp	1.19%	1.12%	0.93%	0.90%	1.09%	1.11%	1.23%	1.21%	1.02%	1.16%	1.03%	1.11%
Biscayne Blvd to I-395 EB Ramp	1.47%	1.41%	1.51%	1.35%	1.51%	1.49%	1.39%	1.47%	1.49%	1.35%	1.45%	1.41%
I-395 WB to I-95 SB Ramp	0.78%	0.70%	0.84%	0.79%	0.75%	0.49%	0.66%	0.73%	0.71%	0.93%	0.85%	0.82%
I-95 SB to NW 8 ST Ramp	0.96%	1.08%	1.25%	0.89%	0.86%	0.90%	0.86%	0.83%	1.10%	0.88%	0.98%	1.10%
I-95 SB to SR 836 WB Ramp	0.77%	0.80%	0.84%	0.59%	0.66%	0.73%	0.77%	0.82%	0.76%	0.88%	0.68%	0.84%

APPENDIX C – LINK-NODE DIAGRAM FOR MODIFIED MODEL

I-395 CORSIM Reanalysis – Link-Node Diagram



APPENDIX D – RANDOM SEED NUMBERS

5

9927	8219	24007
8321	15119	357
29133	1549	18901
10769	16147	30109
27971	177	12979

APPENDIX E – CORSIM OUTPUT REPORTS

NO BUILD 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
1	563	1236.6	1236.2	0	1	1.0654	43.797	63.9306	3.1016	2.833	0.2684	0.9134	1.4594	0.1264	1236.617	30.085	41.107	
202	1	1234.6	1236.6	0	0.6	1.8216	75.1314	109.2978	5.3062	4.864	0.4426	0.9166	1.4546	0.1216	1235.8076	29.9634	41.247	
21	39	869.8	871	0	1.4	1.833	77.459	109.981	7.5836	7.121	0.4624	0.9392	1.4198	0.0866	870.1794	20.592	42.2578	
36	40	1508.4	1505.2	185.8	5.2	3.0176	128.6714	181.0502	7.2114	6.833	0.3782	0.9478	1.4072	0.0738	753.198	17.6634	42.641	
39	42	871	872	0	1.6	1.9988	67.8548	119.928	8.2632	6.227	2.036	0.7642	1.7692	0.436	871.709	25.678	34.3822	
40	48	1505.2	1505.2	46.4	3.2	3.2062	135.1322	192.3702	7.6678	7.182	0.4864	0.9366	1.4236	0.0902	752.6346	17.8572	42.1476	
44	88	7790.6	7789.6	128.4	14.4	14.0142	891.1614	840.8464	6.4762	6.336	0.1404	0.9784	0.9436	0.0206	1558.0568	24.5014	63.5902	
4	576	510.4	510	30.8	1	1.0082	42.8884	60.4942	7.1168	6.727	0.3892	0.9452	1.4104	0.077	304.3692	7.1552	42.5386	
59	82	2084.2	2084.6	132.4	4	3.9038	163.0596	234.2304	6.7414	6.258	0.484	0.9284	1.4362	0.103	1042.3184	24.9542	41.774	
84	86	1734	1734.6	47.6	2.4	2.53	109.709	151.794	5.2514	5.061	0.1906	0.9638	1.3836	0.0504	867.162	19.9966	43.3652	
137	44	7788.8	7790.6	156	10.6	11.6964	731.2148	701.7868	5.1914	4.993	0.1984	0.9618	0.9596	0.0366	1622.1914	25.9484	62.516	
18	133	1234.8	1234.6	0	3.2	3.1528	130.9282	189.1606	9.1932	8.485	0.7086	0.9228	1.4446	0.1114	1234.464	29.7252	41.5336	
18	198	269.4	269.2	0	0.2	0.2552	11.2702	15.3298	3.4162	3.348	0.0676	0.9802	1.36	0.0268	269.2594	6.1042	44.1118	
19	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
195	18	1504.8	1504.2	79.4	2.2	2.7936	109.4408	167.6192	6.6822	5.818	0.8642	0.8706	1.5314	0.198	752.406	19.2064	39.185	
197	37	580.2	580	0	0.6	0.5908	25.9324	35.4474	3.6656	3.576	0.09	0.9752	1.367	0.0334	580.1798	13.2178	43.8954	
200	36	1508.4	1508.4	353.2	2.2	2.3542	103.4112	141.2496	5.6188	5.485	0.134	0.9762	1.3658	0.0326	754.1594	17.1682	43.9262	
218	22	2119.4	2120.6	49	1.4	1.5238	94.351	91.4352	2.588	2.465	0.123	0.9524	0.969	0.0458	1059.9432	17.1198	61.9134	
222	51	1023.2	1024.8	0	0.8	1.2068	62.8564	72.4112	4.2412	4.2412	0	1	1.1518	0	1024.3298	19.6674	52.0886	
22	257	2120.6	2121.2	21.8	0.8	1.3804	85.562	82.827	2.3432	2.234	0.1088	0.9536	0.9682	0.0452	1060.488	17.1096	61.9812	
226	49	1333.4	1334.6	0	1.2	2.1706	95.255	130.2394	5.8578	5.712	0.1456	0.9752	1.3672	0.034	1334.0738	30.4006	43.8826	
229	58	1633.2	1631.6	0	2.4	1.6424	62.1294	98.5426	3.6228	3.426	0.1968	0.9458	1.5862	0.0862	1632.0574	43.1432	37.8284	
230	57	1633	1634	0	1.8	2.761	108.9032	165.6606	6.0846	5.333	0.7508	0.8766	1.521	0.1876	1633.5488	41.4152	39.446	
244	84	1732.2	1734	66.8	2.4	3.8488	167.0584	230.9262	7.9954	7.712	0.2834	0.9644	1.3824	0.0488	866.4732	19.962	43.406	
249	59	2081.4	2084.2	569	1.6	3.031	125.8376	181.8548	5.239	4.833	0.4054	0.9228	1.4452	0.1118	1041.4144	25.0832	41.5176	
32	199	1237	1237.6	0	0.2	1.6622	68.903	99.7354	4.836	4.455	0.3812	0.9212	1.4474	0.1142	1237.4412	29.8526	41.4514	
37	537	580	580.8	0	0	0.3998	17.588	23.9978	2.4808	2.424	0.0566	0.9774	1.3644	0.0312	580.412	13.1988	43.9752	
48	207	1505.2	1505.6	1.8	0.8	1.1454	48.4626	68.7152	2.7394	2.576	0.1634	0.9404	1.4178	0.0848	752.5976	17.785	42.3154	
49	136	1729.2	1729	214	2	1.3504	57.6324	81.0196	2.8116	2.667	0.1452	0.9486	1.4058	0.0724	864.485	20.255	42.6796	
50	628	3190.6	3191.4	96.2	6	5.9698	365.6538	358.2048	6.7348	6.346	0.3888	0.9424	0.9796	0.0566	1595.5802	26.0514	61.2476	
565	80	8858.2	8863.4	2884.6	70.4	64.3194	3884.452	3859.1784	26.1356	24.283	1.8522	0.9292	0.9936	0.0706	1298.9174	21.5078	60.3934	
57	568	1634	1633	0	2.6	1.9174	80.4436	115.0568	4.2258	3.939	0.2862	0.9324	1.4302	0.097	1633.6268	38.9422	41.9504	
58	230	1631.6	1633	0	1	2.1156	74.8076	126.936	4.666	4.125	0.541	0.884	1.697	0.197	1632.1648	46.1584	35.3622	
596	76	1070.6	1072	0	1.2	2.2478	83.617	134.856	7.5506	7.023	0.5276	0.9302	1.6128	0.1128	1071.5966	28.8044	37.2056	
598	81	2898	2899	54.6	1.6	2.2706	98.263	136.2256	2.8198	2.712	0.1078	0.9616	1.3864	0.0528	966.1608	22.3238	43.2798	
610	21	869.2	869.8	0	0.4	1.1408	49.568	68.445	4.7232	4.561	0.1624	0.9656	1.381	0.0476	869.4986	20.0104	43.452	
629	50	3189.4	3190.6	89.8	3.8	5.2762	323.8404	316.5718	5.9542	5.622	0.3322	0.9442	0.9776	0.0546	1595.036	25.9872	61.3776	
63	251	819.6	819.8	0	0.2	0.6972	30.2746	41.8346	3.062	2.955	0.1072	0.9648	1.3818	0.0484	819.7406	18.879	43.422	
638	97	3187.6	3187.4	105	6.2	5.8494	361.5748	350.9572	6.607	6.283	0.3238	0.951	0.9706	0.0476	1593.5846	25.7798	61.8146	
661	49	395.2	394.6	0	1.2	0.484	21.1734	29.024	4.408	4.288	0.1202	0.9728	1.3708	0.0374	395.0364	9.0254	43.7726	
7008	4	509.8	510.4	95.2	0.2	0.5166	19.276	31.002	3.3082	2.742	0.5656	0.829	1.6084	0.2752	281.1522	7.5364	37.3064	
706	32	1235.8	1237	0	6	6.6296	276.5928	397.7614	19.3	17.894	1.406	0.927	1.4382	0.1048	1236.5882	29.6384	41.7224	
76	190	1072	1072	0	2.2	1.8922	70.835	113.526	6.3558	5.949	0.407	0.936	1.6026	0.1026	1071.6566	28.6256	37.4386	
79	522	4047.2	4046	1245.4	15.8	15.4008	974.1082	924.0462	13.496	13.133	0.3634	0.9732	0.9486	0.0256	1369.3534	21.6498	63.2508	
80	602	8863.4	8856.4	1835	76.8	76.1016	4693.765	4566.0952	30.9306	29.35	1.5808	0.949	0.973	0.05	1476.238	23.9346	61.6778	
81	565	2899	2895.4	122.4	6.4	5.082	220.0004	304.9142	6.3156	6.076	0.2398	0.962	1.386	0.0528	965.588	22.3046	43.2908	
82	195	1504.4	1504.8	680.4	2.6	2.4342	102.915	146.0526	5.8214	5.47	0.3516	0.9394	1.4192	0.0858	752.6188	17.8016	42.2822	
82	197	580.2	580.2	0	0.2	0.5248	22.1964	31.487	3.2564	3.061	0.1958	0.9402	1.4186	0.0854	580.182	13.7174	42.298	
84	246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1734.6	1730.2	110.4	7	5.4808	237.5824	328.8558	11.388	10.97	0.4184	0.9632	1.3842	0.051	866.3228	19.9858	43.3472	
88	132	7789.6	7792.2	2178.6	20.6	22.0708	1388.435	1324.2456	10.1988	9.871	0.328	0.9678	0.954	0.031	1558.1166	24.768	62.9082	
97	637	3187.4	3187.2	53.6	4	3.305	204.031	198.298	3.7332	3.545	0.1874	0.9498	0.972	0.049	1593.614	25.814	61.7342	
100	701	2732.4	2729	1005.4	6.6	4.949	186.7506	296.9588	6.5176	5.47	1.0478	0.8702	1.5888	0.2554	919.8162	24.3772	39.1488	
101	150	773.8	774.2	0	1.2	0.9482	40.4864	56.893	4.4058	4.182	0.2242	0.9494	1.4048	0.0714	774.519	18.1398	42.716	
104	221	1442.6	1443.4	0	2	2.1616	129.8254	129.705	5.393	4.983	0.4104	0.924	0.9992	0.076	1443.1086	24.0296	60.0544	
106	107	4874	4877.6	427	5.4	6.258	374.0258	375.472	4.62	4.248	0.3718	0.9198	1.004	0.081	1219.0474	20.396	59.7692	
107	590	4877.6	4876	1247.2	10	8.4208	516.3324	505.25	6.2158	5.864	0.3524	0.9432	0.9788	0.0554	1219.2466	19.8846	61.316	
109	190	1825	1824.4	36.6	2.4	2.7856	120.5754	167.1396	5.4974	5.288	0.2094	0.962	1.386	0.0528	912.0916	21.0718	43.2856	
111	524	2868	2869.4	284.6	11	10.1774	635.8904	610.6588	12.7678	12.273	0.495	0.9612	0.9602	0.0372	956.5532	15.3098	62.4798	
114	189	845	844.6	0	1	0.7696	38.7196	46.1804	3.2796	3.2782	0.0014	0.9996	1.1926	0.0006	844.7842	16.7928	50.3072	
115	661	2351	2350.2	0	3	2.6024	110.8496	156.1344	3.9856	3.773	0.2126	0.9464	1.4084	0.075	783.5144	18.3936	42.5974	
123	211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	711	510	510.2	0	0.8	0.7424	31.8772	44.548	5.2396	5	0.2396	0.9542	1.3972	0.064	510.0342	11.8794	42.9414	
130	401	4677.4	4676	304.4	9.2	9.1004	501.3576	546.0176	7.0046	6.432	0.573	0.9182	1.0892	0.0892	1558.9922	28.2976	55.0928	
131	101	773.2	773.8	0	0.2	0.6972	28.1222	41.8278	3.2442	2.909	0.3348	0.8968	1.4868	0.1534	773.363	19.171	40.3624	
132	558	7792.2	7787.4	2483.2	28.4	25.9662	1596.426	1557.973	11.9992	11.35	0.6496	0.9458	0.976	0.0528	1558.064	25.3424	61.4808	
133	201	1234.6	1234.2	0	4.4	4.4772	187.0234	268.6354	13.057	12.121	0.936	0.9284	1.4362	0.1028	1234.354	29.55	41.775	
145	109	1825.2	1825	21.2	2	1.6954	73.6216	101.724	3.3444	3.227	0.117	0.9648	1.3818	0.0482	912.4918	21.0132	43.4256	
145	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	106	774.2	773.6	0	1.6	1.3086	62.7088	78.5106	6.0878	4.49	1.5978	0.7378	1.2516	0.3284	773.604	16.1424	47.9408	
182	188	1826.4	1825.2	55.4	3.8	3.2074	140.0462	192.4436	6.3242	6.136	0.1874	0.9704	1.3744	0.0408	608.5964	13.9384	43.6644	
188	145	1825.2	1825.2	19.6	1.8	1.7366	75.694	104.1842	3.4252	3.318	0.107	0.9688	1.3764	0.0428	608.3178	13.9546	43.5936	
189	205	844.6	844	0	1.2	0.8698	38.8694	52.1804	3.707	3.682	0.0252	0.9932	1.3426	0.009	844.5674	18.8966	44.6948	
190	191	2896.4	2898.8	192.6	3.4	4.2128	178.332	252.7638	5.2344	4.924	0.3104	0.9406	1.4172	0.084	965.7356	22.8134	42.332	
191	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
191	598	2898.8	2898	214.8	9.6	7.386	319.9934	443.159	9.175	8.833	0.3414	0.9628	1.3848	0.0516	966.0176	22.2972	43.325	
198	200	1506.4	1508.4	626.2	2	3.3524	144.2084	201.1342	8.0042	7.652	0.3526	0.956	1.3948	0.0616	753.8812	17.5246	43.0174	
199	198	1237.6	1237.2	0	1.2	1.3814	57.1702	82.89	4.0202	3.697	0.3232	0.9196	1.4498	0.1166	1237.1248	29.8948	41.3828	
201	202	1234.2	1234.6	0	3.2	3.1054	128.8176	186.3276	9.0562	8.348	0.7076	0.922	1.4464	0.1132	1234.403	29.7584	41.484	
203	209	1380.2	1380.4	0	2.6	3.1554	127.3644	189.3286	8.2264	7.379	0.8476	0.8968	1.4864	0.1532	1380.8714	34.2114	40.363	
203	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

NO BUILD 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
205	206	844	844.6	0	0.4	0.7892	31.329	47.3662	3.3674	3.341	0.0264	0.992	1.5118	0.0118	843.9596	21.2666	39.686	
206	207	844.6	845.6	0	0.4	0.7516	29.7734	45.0898	3.2012	1.951	1.2502	0.6094	1.5146	0.5916	845.1848	21.3328	39.6184	
207	115	2351.2	2351	0.6	2.8	2.4548	105.0822	147.2812	3.7588	3.576	0.183	0.9512	1.4016	0.0682	783.6646	18.3062	42.8086	
209	210	1380.4	1381.4	0	1	1.7628	72.7322	105.7736	4.5944	4.212	0.3822	0.9166	1.4542	0.1212	1381.3862	33.482	41.2572	
210	212	1381.4	1381.4	0	2.8	2.8074	117.1924	168.4576	7.3178	6.788	0.53	0.9274	1.4374	0.1042	1381.1982	33.0898	41.7406	
211	235	1379.6	1379.2	0	1	0.8578	42.58	51.4782	2.2392	2.223	0.0166	0.9924	1.2088	0.0088	689.6396	13.8958	49.6284	
212	214	3150.4	3149	965.4	3.6	3.1578	168.7996	189.4748	3.61	2.969	0.6412	0.8224	1.1224	0.1994	1049.7774	19.6394	53.4532	
213	212	1767.8	1769	51.6	2	2.4708	146.3664	148.2432	5.0296	4.584	0.4456	0.9116	1.0128	0.0898	884.2288	14.9262	59.2424	
214	215	3149	3147.6	604.8	6.6	4.9906	295.8034	299.439	5.7058	5.203	0.5028	0.912	1.0124	0.0892	1049.6248	17.7086	59.272	
215	216	3147.6	3146.4	442	7.6	6.5596	402.3422	393.5872	7.5036	7.08	0.4232	0.9438	0.9782	0.0552	1049.0702	17.104	61.3346	
216	217	3146.4	3142	63	11.4	8.0182	494.2564	481.096	9.181	8.706	0.4744	0.9484	0.9734	0.0502	1048.0614	17.0026	61.641	
217	218	2119	2119.4	30.4	1	1.1682	72.244	70.0966	1.9844	1.888	0.0964	0.9514	0.9704	0.0474	1059.5756	17.1346	61.838	
217	222	1023	1023.2	0	0.4	0.545	32.7424	32.6992	1.9176	1.9176	0	1	0.9986	0	1022.9608	17.0266	60.0838	
219	262	913	910.8	479.2	3.4	1.5868	51.0846	95.2088	6.2684	4.485	1.7834	0.7156	1.8636	0.5302	382.0494	11.8674	32.1992	
221	258	3564.2	3562.4	1653.4	11.4	9.2476	480.5956	554.8488	9.3408	7.469	1.8724	0.7998	1.1544	0.2314	1253.7272	24.1236	51.9742	
223	224	403	402.6	0.4	0.6	0.4088	12.2052	24.5224	3.6534	2.424	1.2292	0.6636	2.0096	0.676	306.8774	10.2762	29.8622	
224	237	402.6	402.6	0	0.2	0.2882	11.512	17.3134	2.581	2.288	0.293	0.8866	1.504	0.171	402.5368	10.0898	39.8908	
227	237	416.2	416.6	0	0	0.3706	15.5384	22.242	3.2044	2.985	0.2194	0.9314	1.4314	0.098	416.4606	9.9354	41.9196	
228	229	1634.6	1633.2	0	3.8	2.4312	102.4234	145.8694	5.357	5.015	0.3418	0.9362	1.4244	0.091	1633.8228	38.781	42.1288	
231	233	2732.8	2732.8	375.6	3.2	2.6544	130.4366	159.2612	3.4964	3.436	0.06	0.9828	1.221	0.021	910.9858	18.5382	49.1418	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2732.8	2732.8	155.6	4	3.278	140.3034	196.6836	4.3168	4.106	0.2106	0.9512	1.4016	0.0686	911.1948	21.2894	42.8064	
234	100	2732.8	2732.4	149.8	3.2	3.3108	133.5596	198.6484	4.3598	3.909	0.4504	0.8986	1.487	0.1538	1366.6558	33.8782	40.445	
234	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
235	203	1379.2	1380.2	0	0	0.794	36.3238	47.6346	2.0714	2.0714	0	1	1.3114	0	689.8918	15.0788	45.7524	
237	256	819.2	819	625.8	0.4	0.6476	27.9248	38.8672	2.847	2.727	0.1198	0.958	1.392	0.0586	409.5654	9.5008	43.1092	
238	239	1821.6	1820.8	112	5.6	5.9764	260.0232	358.5784	11.8158	11.424	0.3916	0.967	1.379	0.0458	910.4258	20.925	43.5088	
239	242	1820.8	1821.2	49.8	1.8	2.6764	116.2272	160.5832	5.291	5.106	0.185	0.9652	1.3816	0.0484	910.5032	20.9662	43.427	
242	244	1821.2	1820	155.4	3.8	3.5764	155.222	214.5922	7.0694	6.818	0.2514	0.9646	1.3824	0.0492	780.5448	17.985	43.4002	
244	245	87.8	88	0	0	0.2234	10.0004	13.4054	9.157	9.1014	0.0556	0.994	1.341	0.008	87.857	1.9628	44.751	
245	247	88	88.4	0	0	0.0748	3.345	4.4864	3.049	3.0272	0.0214	0.9932	1.3414	0.0094	88.3072	1.974	44.7264	
250	249	1258.2	1258.8	13.8	1	0.9942	35.2814	59.6542	2.8442	2.242	0.602	0.7888	1.6912	0.358	940.8382	26.513	35.4956	
251	252	819.8	820.2	0	0.6	0.9044	38.8174	54.2702	3.9714	3.788	0.1838	0.9536	1.3982	0.0646	819.825	19.103	42.918	
252	249	820.2	822.6	0	0	1.6928	72.0272	101.5742	7.4196	7.015	0.4046	0.9456	1.4104	0.0766	821.3922	19.3056	42.5472	
253	254	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
253	651	818.6	818.6	0	0.4	0.613	25.8888	36.7854	2.6964	2.53	0.1662	0.9382	1.421	0.0874	818.5224	19.3838	42.228	
255	104	1442.4	1442.6	0	1.8	2.0428	123.2146	122.5766	5.0984	4.731	0.3678	0.928	0.995	0.072	1442.5142	23.9174	60.3112	
256	253	819	818.6	11	0.8	0.576	23.8916	34.5538	2.5318	2.333	0.1982	0.9216	1.4464	0.1134	409.5708	9.8726	41.4826	
257	639	2121.2	2119.6	1.8	3.6	2.7014	154.6152	162.0834	4.5862	4.5862	0	1	1.0484	0	1060.2198	18.524	57.236	
258	614	3562.4	3562.2	78.8	4	3.0896	173.3856	185.3776	3.1226	2.696	0.4266	0.8634	1.069	0.146	1781.0798	31.7378	56.1202	
262	627	910.8	909.6	0	1.6	0.8862	37.7494	53.1854	3.5064	2.297	1.2092	0.655	1.4088	0.4858	910.124	21.3712	42.5864	
346	557	6804.8	6805	2086.4	27.2	24.4666	1434.191	1468.0026	12.9458	11.675	1.271	0.9018	1.0234	0.1004	1586.8674	27.0714	58.618	
351	556	6804	6804	560.8	8.6	7.0472	405.9142	422.8292	3.7286	3.304	0.4244	0.8864	1.0416	0.1186	1700.9744	29.5312	57.6006	
401	411	10684.8	10686.8	7475.8	64.4	64.9168	3923.267	3895.0084	21.8754	20.339	1.5362	0.9298	0.9926	0.0696	1780.5442	29.4618	60.4356	
402	130	4679.2	4677.4	878.8	47.8	48.524	2570.016	2911.4436	37.1008	35.727	1.3736	0.963	1.1328	0.0418	1569.4752	29.6332	52.9642	
411	657	10686.8	10685.8	3891.6	30.4	31.3444	1864.248	1880.6554	10.558	9.661	0.8972	0.915	1.0088	0.0856	1781.2576	29.9488	59.477	
42	7010	872	872.4	0	1.2	1.1436	23.6226	68.6238	4.7308	2.167	2.5642	0.477	2.9112	1.578	872.2144	42.2302	21.4688	
51	7004	1024.8	1025.4	0	0.8	1.0072	43.296	60.4436	3.5376	3.379	0.1588	0.9552	1.3958	0.0628	1025.1264	23.8522	42.9846	
522	525	4046	4041.6	1682.6	21.4	18.4552	1122.921	1107.3084	16.4276	15.378	1.0498	0.9358	0.9862	0.0632	1011.0886	16.617	60.8462	
524	526	4599.6	4597.6	1860.6	20.4	19.9612	1176.094	1197.6656	15.6332	14.171	1.462	0.9066	1.0184	0.0954	1051.7912	17.8516	58.923	
525	527	2805.6	2805.6	1007.2	12	10.4752	663.9428	628.5104	13.4358	13.101	0.3344	0.9752	0.9466	0.0236	935.58	14.761	63.3824	
525	706	1236	1235.8	0	5.6	6.817	287.267	409.0312	19.8526	18.591	1.2618	0.9366	1.4238	0.0904	1236.1614	29.3358	42.1402	
526	523	4597.6	4593.8	373.8	19.2	18.3366	1142.826	1100.1974	14.3638	13.773	0.591	0.9586	0.9626	0.0396	1148.919	18.4344	62.3252	
527	537	2805.6	2803.4	687.4	11.4	11.048	695.9628	662.8882	14.1788	13.741	0.4376	0.9694	0.9526	0.0296	935.0342	14.8432	62.9936	
528	111	2865.4	2868	191.4	5.8	8.3772	523.4104	502.6414	10.5198	10.112	0.4078	0.9612	0.9604	0.0372	955.6038	15.2946	62.48	
529	541	3386.4	3387.4	76.8	4.6	5.761	341.9416	345.6712	6.1228	5.591	0.532	0.9132	1.0108	0.0878	1129.1138	19.0238	59.3544	
535	529	3384.4	3386.4	74.4	4.2	4.5554	280.8602	273.3238	4.8438	4.594	0.2492	0.9486	0.9732	0.0502	1128.571	18.3048	61.6554	
536	615	3831.8	3833	2017.6	3	3.2868	176.3942	197.2084	3.087	2.549	0.5382	0.8256	1.1182	0.1952	958.1902	17.8544	53.6676	
537	535	3384.2	3384.4	809.6	7.6	6.882	413.3074	412.9098	7.3226	6.766	0.5566	0.9238	0.999	0.0758	860.8528	14.3338	60.0582	
538	586	2315	2314.6	304.2	3	3.205	200.3652	192.3086	4.9842	4.794	0.1906	0.962	0.9598	0.0368	1157.4712	18.5154	62.5136	
541	538	2316.2	2315	61	4.8	3.6716	229.779	220.298	5.709	5.497	0.2122	0.9628	0.9588	0.0358	1157.666	18.4982	62.5822	
541	596	1071.2	1070.6	0	2.4	1.4062	55.3712	84.3762	4.7268	4.653	0.0734	0.9846	1.5236	0.0236	1070.9162	27.198	39.3802	
542	548	7954.6	7952.8	423.8	17.6	15.3718	834.529	922.3202	6.9574	5.811	1.1458	0.8356	1.1052	0.1822	1988.4088	36.6262	54.3162	
542	554	2734	2733.4	32.4	1.8	1.3178	75.0764	79.074	1.7356	1.648	0.0878	0.9496	1.0534	0.0534	1366.9058	23.9948	56.9684	
544	536	2198.2	2198.2	155.6	5.2	5.1958	325.1188	311.746	8.51	8.192	0.3176	0.9628	0.9588	0.0358	732.6622	11.7088	62.5738	
547	566	1637.2	1636.8	0	0.8	0.8762	44.3326	52.5806	1.9274	1.773	0.1548	0.9196	1.1862	0.0952	1636.887	32.3574	50.5872	
547	711	4772	4770.6	80.6	4	3.2932	200.603	197.594	2.4848	2.329	0.156	0.9372	0.9848	0.0618	1590.3666	26.1086	60.9134	
548	580	7952.8	7954.4	228	13.2	13.6966	747.1518	821.7842	6.199	5.203	0.996	0.8396	1.0996	0.1766	1988.388	36.45	54.5706	
549	226	1332.6	1333.4	0	2.2	2.4612	116.1386	147.6736	6.6472	6.273	0.3744	0.9438	1.2716	0.0716	1333.0692	28.2506	47.1854	
549	595	4855	4855	339.6	7.2	6.856	423.9118	411.3524	5.0832	4.836	0.248	0.951	0.9702	0.0472	1618.4054	26.1744	61.833	
553	351	6802.4	6804	4171.8	15.4	19.011	1093.936	1140.6686	10.06	8.906	1.1542	0.8852	1.0426	0.1196	1362.9028	23.6856	57.543	
554	231	2733.4	2732.8	32.4	3.4	3.0312	164.0944	181.87	3.9926	3.93	0.0626	0.9844	1.1084	0.0176	1366.589	25.244	54.1366	
556	346	6804	6804.8	718	12.8	11.9574	701.1256	717.4436	6.3256	5.706	0.6194	0.9022	1.023	0.1	1701.2606	29.0146	58.6356	
557	802	1401.8	1401.4	0	2.4	1.3652	57.0744	81.91	3.5062	3.258	0.2488	0.929	1.4352	0.1018	1401.6358	33.5262	41.8082	
557	804	5403.2	5404	168	7.4	8.8774	513.8218	532.6416	5.9136	5.266	0.6476	0.8904	1.0368	0.1138	1351.0852	23.343	57.881	
558	559	7787.4	7787	2472.4	22.8	24.413	1472.03	1464.7804	11.285	10.469	0.8166	0.9278	0.9952	0.072	1557.5784	25.8318	60.2988	
559	560	6408	6407.2	2601	26.2	27.0822	1654.435	1624.9316	15.2126	14.297	0.915	0.9398	0.9822	0.0592	1602.2412	26.2276	61.0898	
559	561	1379	1379.2	0	2.2	2.1788	122.5168	130.7288	5.6868	5.33	0.3568	0.9372	1.0668	0.0668	1379.292	24.529	56.2334	
560	547	6407.2	6409.2	685.2	17.2	19.2236	1145.88	1153.4148	10.7978	9.902	0.8956	0.917	1.0064	0.0834	1602.2908	26.8804	59.608	
561	211	1379.2	1379.6	0	5	4.68	241.8946	280.8102	12.2158	11.479	0.7362	0.9398	1.1608	0.0698	1379.27	26.6862	51.6854	
562	564	5281.2	5277.6	696.6	8.4	5.8188	343.9646	349.1324	3.968	3.608	0.3592	0.9094	1.015	0.092	1363.4626	23.0658	59.1156	

NO BUILD 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
563	600	5964.8	5964.2	427	7.2	7.5912	436.0632	455.4782	4.5818	4.049	0.5328	0.8838	1.0444	0.1214	1491.2004	25.9598	57.443	
564	563	4729.2	4728.6	209.8	12.2	10.4498	638.6012	626.9876	7.955	7.479	0.476	0.9402	0.982	0.0588	1576.3502	25.7948	61.1118	
564	603	548.4	547.6	0	2.6	1.796	81.3138	107.7624	11.7912	11.7912	0	1	1.325	0	548.322	12.1114	45.278	
566	228	1636.8	1634.6	0	3.2	2.211	104.7018	132.6602	4.8666	4.609	0.2574	0.9472	1.2668	0.0668	1635.5798	34.5388	47.355	
568	536	1633	1633.6	0	1.8	2.5852	107.648	155.1108	5.6984	5.273	0.4256	0.9252	1.441	0.1078	1633.2788	39.2236	41.6392	
569	114	845.2	845	0	0.8	0.507	26.7294	30.4152	2.1594	2.07	0.089	0.9588	1.1376	0.0468	845.0896	16.0274	52.729	
569	544	2200.8	2198.2	94.6	6.6	6.435	402.1152	386.0914	10.529	10.122	0.4066	0.9616	0.9604	0.037	1100.0868	17.604	62.4904	
576	124	510	510	0	2.8	2.517	109.1664	151.0288	17.7788	17.136	0.6424	0.9638	1.3834	0.05	509.6368	11.751	43.3744	
580	549	6184.6	6187.6	1833.4	22.4	21.8426	1259.383	1310.5568	12.7118	11.276	1.4358	0.8872	1.0406	0.1174	1785.1128	30.9608	57.6612	
580	581	1769.8	1769.4	17.8	1	0.7878	38.2142	47.2642	1.6022	1.555	0.0478	0.9704	1.2368	0.0368	884.9572	18.2424	48.5128	
581	582	1769.4	1769.2	57.8	2.6	2.104	95.152	126.2352	4.2814	4.2814	0	1	1.3268	0	884.5128	19.5576	45.227	
582	213	1769.2	1767.8	242.4	3.4	2.9784	145.7026	178.694	6.0624	4.563	1.4996	0.7526	1.2264	0.3032	884.2638	18.0748	48.9238	
586	587	2314.6	2316.4	452.4	1.8	3.8022	238.1744	228.1336	5.9104	5.696	0.2146	0.9638	0.9578	0.0348	1157.9758	18.486	62.6406	
587	588	2316.4	2314.4	281.4	3.6	3.589	221.9032	215.3452	5.58	5.308	0.2724	0.9512	0.9704	0.0474	1157.756	18.7256	61.8274	
588	611	2314.4	2314.2	125.8	4.8	3.221	196.862	193.27	5.0092	4.71	0.2996	0.9402	0.9818	0.0588	1157.4962	18.9396	61.1154	
590	591	4876	4872.4	438.8	9.2	9.0754	526.2702	544.5246	6.702	5.979	0.723	0.892	1.0348	0.1118	1218.7312	21.0168	57.9894	
591	182	1827.6	1826.4	95.2	3.8	2.6236	113.8406	157.4096	5.1696	4.985	0.1846	0.9644	1.3828	0.0496	913.494	21.052	43.3932	
591	569	3044.8	3046	525.8	6	7.9156	476.34	474.9484	9.3592	8.664	0.6946	0.9258	0.9972	0.074	1014.9616	16.8666	60.175	
595	553	4855	4846.8	1147.6	21	17.2028	1062.094	1032.1758	12.766	12.126	0.6402	0.95	0.972	0.049	1617.0294	26.1914	61.7402	
599	528	3831.4	3831.4	474.8	7.2	7.9902	463.6688	479.4118	7.508	6.703	0.8052	0.8928	1.0338	0.1108	787.4468	13.5696	58.0304	
600	565	5964.2	5962.8	282.2	13	12.062	732.9564	723.7298	7.2822	6.808	0.4744	0.935	0.9874	0.0644	1490.7588	24.5332	60.765	
601	401	6004	6008.8	1242.4	88.2	91.6256	5598.697	5497.5312	54.709	51.43	3.279	0.94	0.982	0.059	2009.7302	32.8904	61.1042	
610	636	1444.2	1443.4	0	1.8	2.208	132.8998	132.4874	5.5054	5.098	0.4078	0.926	0.9966	0.0736	1443.8504	23.9896	60.188	
611	612	2314.2	2312.8	34.4	2.8	2.4876	151.1594	149.2522	3.871	3.619	0.252	0.935	0.9874	0.0642	1156.696	19.035	60.7672	
612	610	2312.8	2313.4	10.2	2.8	3.8252	222.1132	229.5022	5.953	5.318	0.635	0.8932	1.0332	0.1102	1156.565	19.9174	58.0684	
614	644	3562.2	3563.4	63.8	4	3.9478	228.7326	236.8632	3.9892	3.556	0.4332	0.8914	1.0356	0.1124	1781.2798	30.743	57.9414	
615	599	3833	3831.4	290.2	5.2	3.5198	203.9492	211.1958	3.3066	2.948	0.3592	0.8914	1.0356	0.1126	958.053	16.5352	57.9416	
626	627	3191.6	3191	187.2	5.4	4.4166	269.5346	264.992	4.9826	4.678	0.3046	0.939	0.9832	0.06	1595.451	26.1428	61.0284	
627	106	4100.6	4100.4	386	5.4	5.0946	297.381	305.6804	4.4738	4.017	0.4562	0.898	1.028	0.105	1366.5554	23.4114	58.3712	
628	626	3191.4	3191.6	117.2	3.8	3.688	225.4406	221.2718	4.1604	3.913	0.2478	0.9404	0.9816	0.0586	1595.6126	26.1018	61.13	
636	255	1443.4	1442.4	0	2	1.5574	93.9976	93.4434	3.8858	3.608	0.2778	0.9286	0.9942	0.0712	1442.7564	23.9042	60.356	
637	629	3187.2	3189.4	91.2	5	5.6892	350.277	341.3552	6.4232	6.084	0.3392	0.9472	0.9746	0.0516	1594.3654	25.896	61.5682	
638	738	973	973.2	0	1.6	1.4504	61.539	87.0226	5.3668	5.061	0.3064	0.9428	1.414	0.0806	972.8324	22.928	42.432	
639	221	2119.6	2120.8	138.8	3.4	4.5824	202.758	274.9434	7.7814	7.652	0.1298	0.9832	1.3562	0.0226	1059.964	23.9554	44.2488	
644	645	3563.4	3564.2	98.2	7.4	7.9746	474.5004	478.4702	8.0558	7.374	0.6812	0.9154	1.0082	0.0852	1781.9074	29.947	59.502	
645	649	4383.8	4386.2	1075.2	35.6	33.4562	2023.49	2007.358	27.4496	25.542	1.9076	0.9306	0.9922	0.069	1462.5632	24.1818	60.4828	
647	638	4159.4	4160.6	148.8	6.8	8.5502	508.1998	513.0222	7.3994	6.766	0.6334	0.9144	1.0096	0.0864	1386.7154	23.3312	59.4364	
648	647	4160.4	4159.4	2410.2	25	24.4014	1530.055	1464.0818	20.91	20.171	0.7388	0.9646	0.9568	0.0338	1400.3622	22.333	62.7036	
651	645	818.6	819.6	0	0.2	1.3296	56.161	79.7578	5.8418	5.485	0.3568	0.939	1.4202	0.087	819.1424	19.3888	42.2506	
657	542	10685.8	10688.6	4909.2	76.8	78.977	4524.717	4738.6294	26.6104	23.455	3.1558	0.8816	1.0472	0.124	1780.7474	31.0822	57.2938	
661	553	1955	1955.6	359.4	7.2	8.6582	409.4638	519.4902	15.9456	15.082	0.8636	0.946	1.2688	0.0688	977.3822	20.667	47.2916	
701	236	906.8	905.6	0	2.4	1.8446	41.8726	110.671	7.269	3.697	3.5722	0.6848	2.6216	1.2882	906.0964	39.914	30.8112	
701	238	1822.2	1821.6	81.4	4.4	3.6138	157.679	216.8352	7.1416	6.924	0.217	0.9698	1.3754	0.0418	910.882	20.8768	43.6308	
7013	63	819.6	819.6	0	0.2	0.8044	33.7832	48.2674	3.2308	3.015	0.2158	0.9332	1.4286	0.0954	896.358	21.3444	41.9966	
711	562	5280.8	5281.2	845.2	13	11.6558	679.1816	699.3364	7.9448	7.122	0.8222	0.8964	1.0296	0.1066	1359.9086	23.3376	58.2746	
804	801	3065.2	3065.2	119.2	5.2	4.576	282.1562	274.5552	5.3738	5.098	0.2762	0.9486	0.9732	0.0502	1021.8012	16.5712	61.6608	
804	803	2338.8	2338.6	107.6	3.6	3.6936	160.3428	221.616	5.685	5.485	0.2008	0.9648	1.382	0.0488	1169.3488	26.9366	43.4128	
136	7002	1729	1728.6	0	1.4	1.0098	43.5388	60.5868	2.1032	2.015	0.088	0.9584	1.3916	0.0582	864.2314	20.0434	43.1164	
236	7007	905.6	906	0	2.6	2.5196	47.1726	151.1736	9.9526	4.167	5.786	0.5202	3.185	1.8514	905.7146	48.3754	23.4056	
247	7012	88.4	88.4	0	0	0.0632	2.8126	3.7798	2.5658	2.5442	0.021	0.9916	1.344	0.0112	88.4	1.9796	44.6446	
528	7005	966	966.2	0	1.6	1.5922	63.1254	95.5226	5.9324	5.881	0.0514	0.9914	1.5132	0.0132	483.0476	12.1826	39.652	
603	7009	547.6	547	0	1.8	1.5622	68.4164	93.7418	10.2746	10	0.2746	0.9732	1.3698	0.0366	547.3286	12.4988	43.799	
7001	223	402.6	403	402.2	0.2	0.414	10.5778	24.847	3.2036	1.818	1.3852	0.5676	2.349	1.016	232.714	9.1104	25.545	
7006	250	1256.8	1258.2	633.2	0.6	1.5942	47.0366	95.6474	4.1378	2.712	1.4258	0.656	2.0342	0.7008	693.7228	23.5112	29.5272	
7011	131	773.2	773.2	0	0.8	0.7824	26.1178	46.9406	3.2664	2.424	0.8422	0.7422	1.7964	0.4634	861.8874	25.8174	33.4032	
7015	227	416.2	416.2	0	0	0.3	10.2962	18.002	2.225	1.697	0.5282	0.7628	1.7482	0.4148	485.3862	14.1444	34.3208	
7016	219	912.6	913	604.6	0.8	0.9322	28.945	55.9312	3.2718	2.258	1.014	0.69	1.9322	0.599	341.9002	11.011	31.0502	
738	7018	973.2	973.8	0	0.4	0.8734	36.8808	52.3886	3.2284	3.03	0.198	0.9388	1.4206	0.087	973.652	23.0508	42.2396	
802	7026	1401.4	1401.8	0	2.4	1.851	75.3856	111.0484	4.754	4.303	0.4508	0.9052	1.4732	0.1396	1401.5392	34.4092	40.7322	
803	7025	2338.6	2338.6	0	2.6	2.3698	101.425	142.1924	3.648	3.47	0.1784	0.9512	1.4018	0.0686	1169.2656	27.3206	42.8006	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
48	1	840.6	840	0	1.4	1.3122	55.0648	78.7184	5.6204	5.242	0.378	0.933	1.4294	0.0962	840.295	20.021	41.9752	
8	20	7379	7378.4	936.2	13.4	13.3528	844.0458	801.171	6.515	6.336	0.1794	0.9724	0.9492	0.026	1475.683	23.3454	63.2108	
137	8	7377.4	7379	1188.2	10.6	11.0368	692.0666	662.2114	5.1758	4.993	0.1828	0.9646	0.9568	0.0338	1535.3408	24.4852	62.705	
1	563	840	839.8	0	0.2	0.5022	20.9968	30.139	2.1528	2	0.1528	0.929	1.4352	0.1022	839.8748	20.0926	41.8048	
18	32	1108.8	1107.6	491	2	1.8422	79.7548	110.5506	5.9854	5.758	0.2276	0.9622	1.3862	0.0526	554.0858	12.8006	43.2884	
18	37	525.6	525.6	0	0.4	0.4916	20.8052	29.496	3.3662	3.167	0.1998	0.9406	1.4176	0.084	525.6052	12.4194	42.3324	
21	39	1689.2	1688	64.6	4.4	4.2958	187.1594	257.7528	9.1546	8.864	0.2916	0.9684	1.3772	0.0438	844.617	19.3866	43.5688	
32	36	1107.6	1107.6	45.6	1.6	1.7274	71.5424	103.639	5.6132	5.167	0.4466	0.9204	1.4486	0.1152	553.8746	13.3728	41.4248	
36	40	845.2	843.4	0	2.8	1.827	77.4	109.623	7.7896	7.333	0.456	0.9414	1.4164	0.0828	844.3656	19.9314	42.3666	
40	46	843.4	842.4	0	4.2	3.0112	128.062	180.6674	12.8726	12.167	0.706	0.9452	1.4108	0.0772	842.051	19.7994	42.5326	
4	576	725	724.2	51.8	2.4	1.463	60.9204	87.7828	7.2704	6.727	0.5432	0.9254	1.4412	0.1074	432.3384	10.3828	41.638	
46	48	842.4	840.6	0	3.2	2.038	85.7462	122.2784	8.7176	8.152	0.5662	0.9352	1.426	0.0926	841.5242	20.0008	42.0782	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1546.8	1548	32.6	1.2	1.844	80.326	110.6458	4.2888	4.152	0.1374	0.968	1.3774	0.044	773.9442	17.7678	43.5598	
63	18	1633.8	1634.4	130.6	2.6	2.719	112.6866	163.142	5.988	5.515	0.4728	0.921	1.4476	0.1144	817.2866	19.7204	41.4524	
68	56	1545.2	1546.8	18.2	0.6	1.3366	58.2728	80.2032	3.1122	3.015	0.0972	0.9688	1.3764	0.0428	773.067	17.7332	43.5954	
71	63	1632.6	1633.8	507	1.6	2.1378	90.0108	128.2746	4.7122	4.409	0.3032	0.9356	1.4252	0.0916	816.5952	19.3954	42.1052	
84	86	1548	1550.2	64.8	2.8	3.1806	138.5146	190.8366	7.3896	7.152	0.238	0.9678	1.3778	0.0444	774.7432	17.79	43.5506	
104	71	986.6	987.8	9.4	0.8	1.1828	44.1262	70.9622	4.3122	3.576	0.7366	0.8294	1.6078	0.2746	814.6404	21.8346	37.324	
127	49	141.8	141.4	0	0.8	0.3226	14.2816	19.3498	8.2036	8.076	0.1276	0.9846	1.3544	0.0212	141.4784	3.1948	44.303	
127	68	1545.4	1545.2	24	2	1.416	61.7508	84.9636	3.2992	3.197	0.1022	0.9692	1.376	0.0426	772.6166	17.7176	43.6084	
19	101	1684.8	1684.6	183.4	3.2	3.1542	137.1832	189.2494	6.7408	6.515	0.2256	0.9662	1.3794	0.0462	842.24	19.3652	43.494	
20	132	7378.4	7379.4	2144	24.8	21.2092	1314.917	1272.5644	10.3488	9.871	0.478	0.9538	0.9678	0.0448	1475.613	23.8014	61.997	
205	19	1685.4	1684.8	327.6	3.2	2.91	127.314	174.6018	6.2182	6.045	0.1726	0.9724	1.3716	0.038	842.3788	19.2544	43.7504	
22	639	1765.6	1766.6	21.8	2.8	2.5686	127.1288	154.1142	5.2346	5.2346	0	1	1.2122	0	883.2102	17.8448	49.495	
237	21	1688.2	1689.2	59.4	2.8	2.9206	127.6	175.2356	6.2266	6.045	0.181	0.9708	1.3732	0.04	844.271	19.3242	43.6912	
309	71	647	644.8	0	2.6	1.7256	73.103	103.5204	9.6218	9.061	0.5612	0.9416	1.4158	0.0826	645.4568	15.2338	42.3774	
36	705	262.4	262.4	0	0	0.2568	11.2812	15.3982	3.5206	3.439	0.0812	0.977	1.365	0.0312	262.4	5.9692	43.9654	
37	537	525.6	524.8	0	1.4	0.6088	26.7628	36.529	4.1714	4.076	0.0954	0.977	1.3646	0.0312	525.3038	11.9498	43.9686	
39	127	1688	1687.2	203.6	3.4	3.2954	143.5136	197.7426	7.03	6.803	0.227	0.9676	1.3778	0.0446	690.1208	15.8482	43.5472	
50	625	1685.8	1684	107.8	4.8	3.2944	143.313	197.66	7.0372	6.803	0.2342	0.9668	1.3792	0.0458	842.6412	19.37	43.503	
50	628	1490.4	1489	52.4	2.2	2.2798	141.3418	136.7874	5.5098	5.255	0.2544	0.9538	0.9678	0.0446	744.7962	12.0134	61.9988	
51	650	1766	1765.8	29.4	3.6	2.1092	132.1334	126.5486	4.2988	4.143	0.1554	0.9638	0.9578	0.0348	883.1198	14.0964	62.6484	
539	82	2798.4	2795.2	247.2	8.6	6.4088	274.4084	384.5228	8.2482	7.848	0.4	0.9514	1.4014	0.068	932.3524	21.7748	42.8184	
545	51	1766	1766	78.8	2.8	3.5166	218.825	211.007	7.1662	6.86	0.3062	0.9572	0.9642	0.041	883.3312	14.1964	62.2236	
545	59	607.4	607.6	0	0.8	0.5972	34.8612	35.839	3.54	3.54	0	1	1.0282	0	607.4852	10.409	58.3644	
565	80	8554.6	8558.6	2768	59.8	62.0466	3752.229	3722.7926	26.1004	24.283	1.8172	0.9304	0.992	0.069	1254.7038	20.7476	60.4744	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	607.6	608	0	1	0.5524	27.7396	33.1366	3.2714	3.2714	0	1	1.1946	0	607.7388	12.1	50.2292	
594	76	1687	1688.2	96.4	5.6	5.5072	239.7042	330.4354	11.7486	11.364	0.385	0.9672	1.3784	0.0452	843.759	19.3856	43.5258	
598	81	2795.2	2795.4	59.2	1.4	2.1866	94.7562	131.193	2.8164	2.712	0.104	0.9632	1.3846	0.0512	931.6812	21.499	43.3362	
629	50	3175.2	3176.2	117.2	5.8	5.8614	336.205	351.6908	6.6448	5.864	0.781	0.8824	1.046	0.123	1058.535	18.455	57.3594	
638	97	3172.6	3173.8	358.6	3	5.8096	360.0596	348.5694	6.5896	6.283	0.3066	0.9538	0.9682	0.0452	1057.9382	17.0696	61.9786	
650	22	1765.8	1765.6	0	1.8	1.3938	83.924	83.6262	2.8422	2.8422	0	1	0.9964	0	882.706	14.6596	60.2146	
7008	4	725.4	725	189.8	1	0.8178	27.3724	49.0622	3.6866	2.742	0.9444	0.7438	1.7922	0.4592	399.2428	11.9266	33.4752	
76	539	1688.2	1688	35.2	1.8	2.0608	89.5192	123.6486	4.3948	4.242	0.1524	0.9654	1.3812	0.048	844.036	19.4306	43.4392	
79	522	3980.8	3980.2	1997.4	15	15.0262	957.8438	901.571	13.3914	13.133	0.2588	0.9808	0.9412	0.0182	1009.8676	15.8424	63.745	
80	602	8558.6	8572.4	1763	66	73.4722	4538.474	4408.3346	30.8838	29.35	1.5342	0.9502	0.9712	0.0482	1427.397	23.1078	61.7712	
81	565	2795.4	2796.2	119.8	3	4.8948	212.3686	293.694	6.302	6.076	0.226	0.964	1.383	0.0496	932.0908	21.4838	43.386	
82	202	2795.2	2794.6	81	2.4	2.964	128.6342	177.856	3.8178	3.682	0.1362	0.9644	1.3824	0.0494	931.6714	21.4696	43.3948	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1550.2	1549.4	105	5.4	4.9912	217.1784	299.4784	11.5954	11.212	0.3828	0.967	1.3788	0.0456	774.7988	17.8068	43.5132	
97	637	3173.8	3173.8	221	3.4	3.9742	246.4768	238.4416	4.507	4.301	0.2066	0.9542	0.9674	0.0442	1058.0472	17.0592	62.0222	
100	658	1633	1633	0	2.2	2.368	84.4192	142.0784	5.221	4.653	0.5678	0.8912	1.6828	0.1828	1632.7216	45.7982	35.6504	
101	691	1684.6	1684.8	191	3	3.4686	148.682	208.117	7.4122	7.061	0.3516	0.9526	1.3996	0.0664	842.3178	19.6506	42.866	
106	107	1061	1059.8	116	2	1.434	53.0138	86.0336	4.8684	4	0.8684	0.8216	1.6226	0.2894	630.4354	17.0518	36.981	
107	590	2547.2	2547.6	319.8	3.2	2.9346	160.1738	176.0768	4.1472	3.483	0.6646	0.8398	1.0994	0.1764	849.1146	15.5568	54.5822	
109	594	2553.2	2552.8	45	4.4	4.2148	181.3552	252.9012	5.9424	5.682	0.2608	0.956	1.3944	0.0612	851.16	19.7824	43.0262	
111	524	3142.2	3142	257.4	9	11.146	696.2292	668.7734	12.771	12.273	0.4982	0.961	0.9604	0.0374	1047.319	16.767	62.464	
114	115	866.8	867	0	1.6	1.8436	69.746	110.616	7.6596	7.244	0.415	0.9458	1.5858	0.0858	866.4924	22.9042	37.832	
115	574	867	867	0	0.4	0.806	30.8786	48.3634	3.3462	3.205	0.1414	0.9578	1.5664	0.0664	867.2266	22.6382	38.3076	
123	705	1090	1090.8	0	3.2	3.285	136.513	197.106	10.8458	10.015	0.8306	0.9236	1.444	0.1106	1090.4516	26.241	41.554	
124	711	724.8	725.2	0	0	0.8654	36.6546	51.9244	4.298	4.045	0.2528	0.9414	1.4166	0.0834	724.859	17.1136	42.3566	
130	401	4477.2	4478.8	281.2	7.6	8.729	480.0318	523.7364	7.0174	6.432	0.5856	0.9166	1.091	0.091	1492.6786	27.143	54.9934	
131	309	648	647	0	1.6	0.8428	36.0594	50.5592	4.6836	4.455	0.2294	0.9514	1.4018	0.0686	647.5966	15.1332	42.8016	
132	558	7379.4	7383.2	2620.8	22.6	24.5746	1512.574	1474.4692	11.9858	11.35	0.636	0.9468	0.9748	0.0518	1476.227	23.984	61.5508	
133	708	1352.6	1351	149.2	2.4	1.999	86.0266	119.9344	5.3232	5.091	0.2322	0.9564	1.3942	0.0608	675.922	15.7058	43.0358	
136	146	1352.4	1352.2	6.2	2.6	2.0256	85.0414	121.5178	5.391	5.03	0.3608	0.9332	1.4292	0.0954	676.232	16.1048	41.9894	
146	158	2219.2	2218.4	1.2	1.8	1.6426	67.6498	98.555	2.6654	2.439	0.226	0.9152	1.4568	0.1234	739.5252	17.9562	41.1846	
158	178	2218.4	2218.4	0	1.8	1.8042	76.4714	108.2414	2.9274	2.758	0.1698	0.9418	1.4156	0.0818	739.5036	17.4458	42.389	
178	622	202.6	201.8	0	1	0.5586	24.5774	33.5106	9.9308	9.712	0.2188	0.978	1.3634	0.0302	202.4472	4.6006	44.0108	
178	661	2015.8	2015.8	184.6	2.8	2.936	125.2638	176.1594	5.2418	4.97	0.272	0.9482	1.4062	0.0732	1008.22	23.6314	42.6648	
189	205	1685.8	1685.4	162	2.6	1.846	80.7718	110.7624	3.9426	3.833	0.1094	0.9724	1.3712	0.038	561.8898	12.842	43.754	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
198	691	870.2	869.2	0	1.6	0.7782	33.6056	46.697	3.2212	3.091	0.1304	0.9596	1.3898	0.056	869.7948	20.144	43.1788	
199	663	1431.4	1431.6	204.2	1.6	1.7388	78.3546	104.3152	4.372	3.031	1.3406	0.6934	1.3312	0.4082	715.7644	15.882	45.07	
200	201	1110.2	1110	0	1	1.1466	43.1048	68.8038	3.7184	3.494	0.224	0.9398	1.5964	0.0964	1110.2146	29.5354	37.5902	
201	539	1110	1110.4	0	1.8	1.5412	57.619	92.476	4.9972	4.67	0.327	0.9346	1.6048	0.1048	1110.3188	29.7002	37.385	
202	598	2794.6	2795.2	63.6	2.4	2.4426	105.8722	146.5572	3.1462	3.03	0.1158	0.9632	1.384	0.051	931.6734	21.4948	43.3438	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	941.8	942	0	0.6	0.761	33.9026	45.6608	2.908	2.879	0.0294	0.9898	1.347	0.0136	942.1334	21.148	44.5468	
208	131	648.8	648	0	1	0.562	24.3144	33.7176	3.1196	3	0.1196	0.9618	1.3866	0.053	648.387	14.9858	43.2798	
209	583	942	941.8	0	1.4	2.4744	102.2128	148.4624	9.458	8.682	0.7764	0.918	1.4526	0.1192	941.8548	22.8006	41.3072	
211	212	359.8	359.4	0	0.6	0.2948	12.7408	17.6792	2.949	2.833	0.1152	0.961	1.3876	0.0544	359.7422	8.3196	43.2386	
212	214	359.4	359.2	0	0.6	0.25	11.0992	14.9862	2.501	2.47	0.0314	0.9874	1.3504	0.017	359.5322	8.0908	44.4352	
213	214	273.6	273.6	0	0	0.2894	12.2808	17.37	3.8092	3.591	0.2182	0.9428	1.4144	0.081	273.6	6.4496	42.4212	
214	217	632.8	632.8	269.4	0	0.3344	14.7414	20.0702	1.9026	1.864	0.0392	0.9794	1.3614	0.028	316.4	7.1796	44.072	
215	216	0.6	0.6	0	0	0.0006	0.0144	0.0336	2.0118	0.7932	1.2186	0.2378	1.405	0.8512	0.6	0.0234	15.4536	
215	651	632.6	631.2	0	2.2	0.7006	30.03	42.0438	3.9922	3.803	0.1892	0.9526	1.3994	0.0662	631.7106	14.7406	42.8728	
217	215	632.8	633.2	3.6	0.2	0.3238	13.907	19.4254	1.8408	1.758	0.0834	0.9548	1.3966	0.063	316.5062	7.3682	42.9696	
221	614	3242	3243	165.4	6.4	6.6092	406.547	396.5548	7.3378	6.944	0.3938	0.9462	0.9754	0.0524	1080.8496	17.5712	61.5136	
226	622	1438.2	1437	0	3.4	2.3354	108.0924	140.1254	5.848	5.848	0	1	1.2962	0	1437.6014	31.0602	46.2866	
228	701	2456.8	2457	964.4	6.2	6.061	256.8156	363.6438	8.8818	8.364	0.5182	0.9418	1.416	0.0826	1039.8666	24.5402	42.375	
231	233	2458.2	2457.2	317.2	3.2	2.1424	117.767	128.5464	3.138	3.1344	0.0034	0.999	1.0916	0.0012	819.2484	14.904	54.9702	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2457.2	2456.4	63.6	2	1.7832	89.3422	106.9872	2.6126	2.6126	0	1	1.1976	0	818.97	16.3452	50.1052	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2456.4	2456.8	93.4	1.6	2.0038	89.3116	120.2272	2.937	2.909	0.028	0.9906	1.346	0.0126	1228.0334	27.552	44.5728	
235	207	941.2	941.8	0	0	0.4866	24.7852	29.2076	1.8614	1.8614	0	1	1.1786	0	470.7412	9.2454	50.9132	
238	109	2554	2553.2	110.6	6.2	5.5708	242.2876	334.2454	7.8538	7.591	0.2628	0.9666	1.3794	0.0462	851.15	19.57	43.4932	
346	557	7033.2	7033	3629.8	25	26.5794	1482.942	1594.7436	13.6012	11.675	1.9264	0.8584	1.0752	0.1522	1640.808	29.4086	55.7948	
351	556	7033.8	7032.4	2102.2	12.8	13.8368	840.5472	830.2142	7.0822	6.619	0.4634	0.9344	0.9876	0.0646	1758.355	28.9456	60.7472	
401	411	10346.4	10347.8	5873	59.4	62.717	3799.921	3763.0148	21.8202	20.339	1.481	0.932	0.9902	0.0672	1724.5644	28.4634	60.5884	
402	130	4476	4477.2	704.8	48.6	46.4814	2459.13	2788.8758	37.1414	35.727	1.4142	0.962	1.1342	0.0434	1501.759	28.3858	52.906	
411	657	10347.8	10346.8	3360	26.2	30.4706	1804.885	1828.2424	10.6012	9.661	0.9406	0.9112	1.0128	0.0898	1724.5368	29.1144	59.2336	
49	7012	141.4	141.6	0	0	0.1744	7.7232	10.4764	4.4376	4.364	0.074	0.9834	1.356	0.0226	141.5888	3.201	44.2532	
522	525	3980.2	3974	839.4	23	19.8718	1212.68	1192.321	17.9882	16.888	1.1002	0.9386	0.9834	0.0602	994.2466	16.2924	61.0246	
524	526	4691.4	4688.2	1626.4	23.8	20.1918	1199.462	1211.5212	15.5062	14.171	1.3352	0.9142	1.0098	0.0868	1072.6898	18.0578	59.4042	
525	527	2886.2	2885.8	196.8	9.4	9.5826	604.1344	574.9652	11.9504	11.591	0.3594	0.9698	0.9518	0.0288	962.2406	15.263	63.0446	
525	706	1087.8	1089	0	5	5.2826	223.7904	316.9668	17.479	16.455	1.0244	0.9414	1.4162	0.0832	1088.041	25.6842	42.3628	
526	523	4688.2	4689.4	376.2	17	18.6964	1166.092	1121.7942	14.3534	13.773	0.5804	0.9596	0.962	0.039	1172.3086	18.7964	62.3712	
527	537	2885.8	2883	1500.6	13.2	11.3978	718.8354	683.871	14.227	13.804	0.4228	0.9704	0.9514	0.0282	961.3604	15.2432	63.0674	
528	111	3141.8	3142.2	203.6	10	9.1716	573.7434	550.3016	10.5068	10.112	0.395	0.9624	0.959	0.036	1047.498	16.7452	62.5568	
529	541	3405.6	3406.8	503.8	6.2	7.7278	447.7704	463.6718	8.1666	7.28	0.8868	0.8914	1.0356	0.1126	851.6672	14.6986	57.942	
535	529	3406	3405.6	155.8	5.2	3.9356	244.4788	236.1486	4.1602	3.976	0.1846	0.9554	0.9658	0.0426	851.4824	13.708	62.1162	
536	615	4183.4	4182.8	1648.8	3.4	3.3348	179.0328	200.0962	2.8702	2.371	0.4996	0.8258	1.1176	0.1946	1045.6782	19.4784	53.6856	
537	535	3407.8	3406	528.8	6.6	5.9892	362.5754	359.3526	6.3296	5.895	0.4342	0.9314	0.9912	0.068	851.5996	14.067	60.5394	
538	586	2295	2292.6	227.4	3.8	3.1362	198.5786	188.178	4.9212	4.794	0.1274	0.9742	0.9476	0.0246	764.7664	12.0786	63.3164	
541	538	2296.4	2295	615	4.6	3.4272	217.4544	205.6432	5.3732	5.245	0.1284	0.9762	0.9458	0.0226	765.4402	12.0642	63.4466	
541	596	1110.4	1110.6	0	0.4	1.2192	45.4344	73.166	3.9526	3.682	0.2706	0.9316	1.6102	0.1102	1110.6188	29.8084	37.2626	
542	548	7886.4	7884.6	526.6	17.6	15.945	827.408	956.693	7.2788	5.811	1.4674	0.7986	1.1564	0.2332	1971.4416	37.9912	51.8978	
542	554	2458.4	2458.2	36.2	1.2	1.1834	67.5152	71.0098	1.733	1.648	0.0852	0.9508	1.0518	0.0518	1229.2422	21.5476	57.047	
544	536	2550	2549.8	366.2	6.6	5.6936	358.932	341.604	8.0352	7.794	0.242	0.97	0.9518	0.0284	850.2294	13.4862	63.0446	
547	566	1633.2	1633	0	2.4	2.3394	115.035	140.3484	5.157	4.612	0.5454	0.8944	1.2198	0.129	1632.7574	33.2008	49.1842	
547	711	4810.8	4808.8	146.6	5.8	5.1298	311.5318	307.8042	3.8398	3.587	0.2522	0.9346	0.9882	0.0652	1603.2044	26.4002	60.7278	
548	580	7884.6	7881.8	196.4	11	11.1726	600.1888	670.3636	5.102	4.217	0.8852	0.8266	1.1168	0.1938	1970.7694	36.6864	53.7312	
549	226	1438.6	1438.2	0	2.4	2.4628	128.334	147.7726	6.1628	5.839	0.3238	0.9474	1.1512	0.0604	1438.6476	27.6094	52.1102	
549	595	5014.4	5015	131.6	7.2	7.1552	437.8112	429.3126	5.137	4.836	0.3012	0.9412	0.9806	0.0574	1671.4694	27.3172	61.1894	
553	351	7031.2	7033.8	2372.2	25	27.0076	1600.861	1620.4656	13.8262	12.608	1.2178	0.9122	1.0124	0.0892	1430.6956	24.137	59.2746	
554	231	2458.2	2458.2	55.6	3	2.2572	128.4996	135.4108	3.305	3.136	0.1686	0.949	1.0538	0.0538	1229.1258	21.5872	56.9378	
556	346	7032.4	7033.2	1510	11.4	12.0988	724.4666	725.9366	6.1942	5.706	0.4882	0.9212	1.002	0.079	1757.897	29.3576	59.878	
557	802	1493.2	1493.4	0	0.6	1.3414	56.2754	80.476	3.2336	3.015	0.2186	0.9322	1.4302	0.0966	1493.1342	35.5874	41.9588	
557	804	5539.8	5541.2	342.4	6.6	9.185	526.8352	551.1038	5.9672	5.266	0.7016	0.8824	1.046	0.123	1385.3036	24.1522	57.3678	
558	559	7383.2	7385.8	1121.4	21.6	22.8964	1395.628	1373.8002	11.1636	10.469	0.6948	0.9378	0.9842	0.0612	1476.737	24.2272	60.9534	
559	560	6444.4	6442.4	847.6	28.6	27.3796	1663.018	1642.7616	15.3	14.297	1.0028	0.9346	0.9878	0.0648	1610.5528	26.5156	60.7406	
559	561	941.4	941.8	0	1.4	1.4644	83.6204	87.8676	5.6004	5.33	0.2708	0.9518	1.051	0.051	941.3978	16.487	57.0982	
560	547	6442.4	6444	448.6	13.8	15.569	928.7316	934.1384	8.6982	7.983	0.7154	0.918	1.0058	0.0828	1610.9406	27.0054	59.653	
561	577	941.8	941	0	3.6	2.9058	165.0266	174.3532	11.118	10.523	0.5952	0.9464	1.0564	0.0564	940.9728	16.5692	56.788	
562	564	5531.2	5531	771.8	4.8	6.2404	360.3182	374.4332	4.0622	3.608	0.4538	0.8884	1.0392	0.1162	1428.2888	24.7372	57.7416	
563	600	5764.4	5760.2	377.8	9	7.1926	421.2418	431.5552	4.4936	4.049	0.4448	0.9008	1.0244	0.1014	1440.516	24.5964	58.5662	
564	563	4924.8	4924.6	236	10.2	10.9834	665.1186	659.0082	8.028	7.479	0.5488	0.9318	0.9908	0.0678	1641.8072	27.1122	60.5582	
564	603	606.2	606	0	3.2	1.9954	89.8844	119.714	11.8486	11.83	0.019	0.9984	1.3318	0.002	606.1166	13.4544	45.058	
566	570	1633	1633	0	1.6	1.544	72.6962	92.637	3.4026	3.205	0.1982	0.942	1.274	0.074	1633.3458	34.6898	47.0932	
568	536	1634.4	1633.6	0	3	2.619	107.6802	157.1372	5.7704	5.273	0.498	0.9138	1.4594	0.1258	1633.7674	39.736	41.1176	
569	544	2548.2	2550	592.8	7.2	6.5642	416.0992	393.8454	9.2714	9.042	0.2294	0.9752	0.9468	0.0236	849.5766	13.4022	63.3912	
570	100	1633	1633	0	2	1.795	76.6844	107.7082	3.958	3.758	0.2006	0.9492	1.4046	0.0712	1632.6342	38.219	42.7216	
574	146	867	867	0	0.8	0.8972	34.3116	53.8422	3.727	3.562	0.1644	0.956	1.5692	0.0692	866.8122	22.6706	38.2348	
576	124	724.2	724.8	0	3.2	3.6222	155.2058	217.3428	17.9976	17.136	0.8612	0.952	1.4002	0.067	724.568	16.9108	42.8476	
577	235	941	941.2	0	0.2	0.5218	29.0548	31.3046	1.9958	1.9958	0	1	1.0776	0	470.5818	8.4502	55.6854	
580	549	6451.2	6453	1871	23.2	24.783	1428.432	1486.9838	13.8284	12.262	1.566	0.8866	1.041	0.1178	1882.2366	32.6564	57.6392	
580	581	1430.6	1431.2	30.6	0.6	1.305	69.6606	78.3108	3.2826	3.186	0.097	0.9702	1.124	0.033	715.58	13.4074	53.3766	
581	582	1431.2	1430.8	17	1.6	1.6162	82.1228	96.9724	4.0656	4.0656	0	1	1.1808	0	715.5254	14.082	50.8142	
582	199	1430.8	1431.4	2.8	0.2	1.076	50.1372	64.559	2.707	2.707	0	1	1.2876	0	715.4728	15.3546	46.5984	
583	584	941.8	941.4	0	1.2	1.6944	79.9196	101.6722	6.477	4.699	1.7778	0.7258	1.2724	0.3494	941.9088	19.9712	47.1608	
584	585	2372.8	2373.4	1148.2	1.8	2.6392	155.959	158.3594	4.004	3.64	0.3642	0.909	1.0152	0.0922	791.0314	13.3868	59.0912	
585	620	2373.4	2373.2	211.6	4.4	3.288	200.0036	197.275	4.9878	4.668	0.3198	0.936	0.9864	0.063	791.026	13.0038	60.8304	
586	587	2292.6	2291.8	182.6	4.6	3.7356	235.6528	224.1314	5.8688	5.696	0.1728	0.9706	0.9512	0.0282	763.8098	12.108	63.085	
587	588	2291.8	2292.6	68.2	2.4	3.4916	219.6706	209.4978	5.4838	5.308	0.176	0.968	0.9538	0.0306	764.0712	12.1448	62.914	
588	611	2292.6	2292.6	37.8	3.2	3.2126	194.9642	192.7528	5.0444	4.71	0.3344	0.9336	0.9888	0.0658	764.2248	12.5926	60.6892	
590	591	2547.6	2549.8	160.4	2.8	3.6308	219.592	217.8452	5.1294	4.773	0.3564	0.9308	0.9922	0.0692	849.4112	14.0444	60.482	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
591	592	2549.8	2550.2	121.6	5.2	4.1792	263.2212	250.7532	5.8998	5.717	0.1828	0.969	0.9526	0.0296	850.0356	13.4964	62.9842	
592	569	2550.2	2548.2	75.8	5	3.2564	206.6764	195.3974	4.5984	4.49	0.1084	0.9762	0.9454	0.0224	849.8842	13.3916	63.4642	
594	114	865.8	866.8	413.4	1.4	2.0588	77.7698	123.5254	8.5552	8.08	0.4758	0.9444	1.5886	0.0886	434.983	11.5152	37.7764	
595	553	5015	5018	127.2	6.4	7.4646	457.9784	447.8786	5.3562	5.056	0.3004	0.9442	0.9778	0.0548	1672.2862	27.2568	61.3542	
596	200	1110.6	1110.2	0	1.6	1.4154	52.9924	84.9154	4.5886	4.295	0.293	0.9362	1.6026	0.1026	1110.3186	29.653	37.4458	
599	528	4180	4181.2	588.8	7.4	8.7514	505.9678	525.0868	7.5356	6.703	0.8328	0.8892	1.0376	0.1146	859.2828	14.8628	57.8168	
600	565	5760.2	5758.4	299.2	10.4	11.5906	707.9882	695.4178	7.2442	6.808	0.4364	0.94	0.982	0.059	1439.9758	23.5734	61.0848	
601	401	5866.4	5867.6	1100.2	93.2	89.6828	5473.046	5380.9648	54.7786	51.43	3.3484	0.939	0.983	0.06	1964.6262	32.193	61.027	
610	636	1474.8	1475	43.2	2.8	2.5456	161.1788	152.7272	6.2128	6.052	0.1606	0.9742	0.9478	0.0246	737.456	11.6464	63.3208	
611	156	818.2	818.8	0	0.8	1.1456	50.8564	68.7382	5.038	4.97	0.068	0.9864	1.3514	0.0184	818.6628	18.4422	44.3944	
611	612	1474.4	1475	34.6	2.2	1.5938	101.097	95.634	3.8914	3.797	0.0942	0.9758	0.9462	0.0232	737.282	11.6242	63.4274	
612	610	1475	1474.8	25.6	1.8	1.5114	95.8348	90.6868	3.6884	3.598	0.0904	0.9756	0.9464	0.0232	737.6206	11.6332	63.4064	
614	644	3243	3242	99.6	7.2	6.2068	388.0662	372.4032	6.8918	6.629	0.2624	0.962	0.9596	0.0366	1080.6914	17.2846	62.5244	
615	599	4182.8	4180	364	5.2	4.0962	235.9962	245.768	3.5266	3.126	0.4008	0.8866	1.0412	0.1182	1045.3526	18.144	57.6158	
620	545	2373.2	2373.4	18.4	3.6	2.8712	175.2598	172.275	4.3566	4.091	0.2656	0.939	0.9832	0.0602	790.917	12.9574	61.0408	
622	188	1638.8	1638	303.4	3	2.3096	98.6594	138.5838	5.0758	4.818	0.2578	0.9492	1.4046	0.0714	819.0588	19.1752	42.717	
625	189	1684	1685.8	33.4	1	1.847	80.7318	110.8298	3.9468	3.833	0.1136	0.9714	1.3728	0.0396	561.6122	12.8498	43.7058	
626	627	1489.6	1489.2	88.6	2.8	2.233	141.6592	133.9796	5.395	5.266	0.1294	0.9762	0.9458	0.0226	744.9802	11.7434	63.441	
627	107	1489.2	1487.4	140.6	5.4	4.5292	286.7824	271.744	10.9612	10.678	0.283	0.9742	0.9478	0.0246	743.7188	11.7452	63.3222	
628	626	1489	1489.6	22.8	1.2	1.7318	109.4302	103.9194	4.187	4.07	0.117	0.9722	0.9496	0.0266	744.5764	11.7848	63.183	
631	568	1634.6	1634.4	0	2.4	2.7104	113.0054	162.6216	5.9688	5.53	0.4382	0.9266	1.439	0.1058	1634.71	39.2076	41.696	
636	639	1475	1476.6	36.6	0.8	1.9016	120.2016	114.081	4.6378	4.51	0.127	0.9726	0.9492	0.026	737.9824	11.6734	63.2194	
637	629	3173.8	3175.2	173.8	4.8	5.2702	327.6868	316.2034	5.976	5.717	0.2592	0.9566	0.965	0.042	1058.2184	17.019	62.1794	
638	738	794.6	795.4	0	0.8	1.2004	51.4936	72.0142	5.4352	5.182	0.2534	0.9536	1.3984	0.0654	794.9894	18.5298	42.9026	
639	221	3243.2	3242	1630.8	9.2	9.356	527.5602	561.367	10.3866	9.01	1.3762	0.8674	1.0638	0.1408	815.4326	14.4614	56.3896	
644	645	3242	3244.6	139.2	5	6.9166	431.758	414.9984	7.6784	7.374	0.3042	0.9604	0.9614	0.038	1080.9304	17.3162	62.424	
645	649	3875	3876.6	869.6	29.6	28.7834	1788.509	1727.0174	26.719	25.542	1.177	0.956	0.9656	0.0424	969.5412	15.6034	62.1368	
647	638	3964.4	3967.2	947.2	8.2	8.005	484.4862	480.3014	7.2662	6.766	0.5002	0.9312	0.9914	0.0684	991.5066	16.3824	60.523	
648	647	3964	3964.4	2289	23.8	23.01	1457.427	1380.6008	20.7004	20.171	0.529	0.9744	0.9474	0.0242	1000.418	15.7946	63.339	
651	645	631.2	630.4	0	1.8	0.9758	41.6814	58.5472	5.5692	5.288	0.2818	0.9494	1.4044	0.0708	630.596	14.7626	42.7262	
657	542	10346.8	10344.8	6337	79.4	79.012	4380.985	4740.7126	27.495	23.455	4.0406	0.8532	1.082	0.1588	1724.18	31.096	55.4602	
658	659	1633	1633.2	0	1.2	1.8238	62.4792	109.4254	4.0198	3.443	0.5768	0.8566	1.7512	0.2512	1633.1184	47.6706	34.262	
659	631	1633.2	1634.6	0	1.6	2.7258	106.1728	163.5576	6.0038	5.197	0.8068	0.8654	1.5404	0.207	1634.384	41.9626	38.9516	
661	553	2015.8	2013.2	171	4.4	3.5712	165.9574	214.2686	6.3822	5.932	0.4504	0.9294	1.2914	0.0914	1007.1896	21.673	46.4716	
663	584	1431.6	1431.4	70.4	1.8	1.8302	100.8662	109.8148	4.6022	3.902	0.7002	0.8478	1.0888	0.1658	715.8244	12.9888	55.1134	
691	238	2554	2554	898	6.4	5.3696	233.0914	322.1854	7.5706	7.303	0.2676	0.9648	1.3822	0.0492	851.1224	19.6076	43.4088	
701	236	769.2	768.2	0	1.8	0.8264	35.959	49.5806	3.8694	3.742	0.127	0.9672	1.3784	0.0454	768.682	17.6646	43.5248	
701	237	1687.8	1688.2	37.4	1.2	1.7376	76.091	104.2598	3.7056	3.606	0.0996	0.973	1.3702	0.0368	844.0314	19.275	43.7906	
705	133	1353.2	1352.6	697.4	2.4	2.6434	115.5854	158.6124	7.0328	6.833	0.1996	0.9718	1.3724	0.0388	676.5988	15.4746	43.7232	
706	123	1089	1090	0	5.6	5.7116	239.3298	342.6924	18.8748	17.576	1.2992	0.931	1.4316	0.0986	1089.3638	25.9972	41.9028	
708	136	1351	1352.4	117	1.8	3.3236	139.7542	199.4144	8.8534	8.273	0.5806	0.9344	1.427	0.0938	675.7338	16.07	42.0484	
711	562	5534	5531.2	1164.4	12.2	13.9948	777.4754	839.699	9.1068	7.783	1.3234	0.8548	1.08	0.157	1452.6076	26.1478	55.5634	
804	801	3156	3156	114.4	4.4	4.7088	290.5496	282.5186	5.3698	5.098	0.2722	0.9494	0.9722	0.049	1052.1968	17.052	61.709	
804	803	2385.2	2385.4	74.6	2.2	2.1474	121.4918	128.8596	3.2422	3.057	0.1852	0.9428	1.0608	0.0608	1192.335	21.0774	56.5708	
156	7010	818.8	818.2	0	1.8	1.415	59.8254	84.891	6.224	5.848	0.3752	0.9396	1.419	0.0856	818.3364	19.3532	42.2878	
188	7002	1638	1638.8	0	0.8	1.171	50.8896	70.2726	2.5734	2.485	0.0884	0.9656	1.3808	0.0474	819.1992	18.8536	43.4518	
192	7007	608	607.6	0	0.6	0.408	18.1896	24.4836	2.4168	2.394	0.0228	0.9906	1.3462	0.0126	607.854	13.6366	44.577	
236	7013	768.2	768.2	0	1	0.877	37.1074	52.6142	4.1074	3.864	0.2438	0.9406	1.4174	0.0844	768.3438	18.1574	42.3312	
528	7005	1039.4	1039	0	2.2	1.7126	67.9088	102.7564	5.9328	5.881	0.0518	0.9914	1.5132	0.0132	519.6502	13.1052	39.6508	
603	7009	606	605.6	0	1.4	1.7302	75.76	103.8124	10.2754	10	0.2754	0.9734	1.37	0.0368	606.0788	13.8418	43.7964	
7001	106	1062.8	1061	554.6	2.8	1.804	59.1832	108.2364	5.7356	4.182	1.5538	0.7292	1.8288	0.4956	566.099	17.2552	32.8092	
7004	198	870.4	870.2	0	1.4	0.9114	34.668	54.6926	3.4422	2.909	0.5332	0.8452	1.5776	0.2442	953.3664	25.0676	38.0316	
7006	104	984	986.6	507.6	1.2	1.6014	49.3672	96.0856	5.44	3.727	1.713	0.6852	1.946	0.6126	529.7958	17.186	30.8372	
7011	208	649.2	648.8	0	1.2	0.7122	27.2378	42.7174	3.617	3.076	0.5416	0.8504	1.5682	0.2346	708.4492	18.5178	38.2696	
7015	211	359.4	359.8	0	0.2	0.3362	12.0382	20.1854	3.0106	2.394	0.6166	0.795	1.6766	0.3432	402.284	11.2426	35.785	
7016	213	273.4	273.6	0	0	0.1846	6.3946	11.0914	2.0696	1.591	0.4786	0.769	1.7342	0.4012	321.5522	9.2958	34.593	
738	7018	795.4	794.4	0	1.2	0.731	31.0152	43.8624	3.3106	3.121	0.1894	0.943	1.4142	0.081	794.9528	18.7372	42.4274	
802	7026	1493.4	1492.8	0	1.6	1.8606	75.2134	111.635	4.4862	4.03	0.456	0.8982	1.484	0.151	1492.9578	36.932	40.4284	
803	7025	2385.4	2386	0	2.8	2.6498	145.4898	158.993	3.999	3.99	0.009	0.9978	1.0926	0.0024	1192.8336	21.7258	54.9042	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
48	1	835.2	835	0	1.6	1.3076	54.714	78.4522	5.6378	5.242	0.3954	0.93	1.4338	0.1006	834.9412	19.9532	41.845	
8	20	7376.8	7376.4	940	15	13.3374	843.9044	800.2454	6.5084	6.336	0.1728	0.9736	0.9482	0.0252	1475.4348	23.3184	63.2732	
137	8	7374.2	7376.8	1165.2	7.6	11.0208	691.766	661.2604	5.1706	4.993	0.1776	0.9656	0.9558	0.0328	1534.6736	24.45	62.768	
1	563	835	835.2	0	0.6	0.5008	20.8712	30.0442	2.1592	2	0.1592	0.9262	1.4394	0.106	834.8454	20.0294	41.6818	
18	32	1100.6	1100.2	480.6	1.8	1.8364	79.163	110.1806	6.0106	5.758	0.2526	0.958	1.392	0.0586	549.975	12.7576	43.1078	
18	37	528.8	528.4	0	0.6	0.4958	20.92	29.7566	3.3774	3.167	0.2106	0.9376	1.422	0.0886	528.5022	12.5292	42.194	
21	39	1638.4	1636.8	66.6	5	4.1582	181.4134	249.492	9.1426	8.864	0.2788	0.9694	1.3754	0.0422	818.6858	18.765	43.628	
32	36	1100.2	1098	46.6	3.4	1.7262	70.9652	103.5704	5.6566	5.167	0.49	0.9138	1.4598	0.1264	549.4078	13.3638	41.1128	
36	40	837.8	836.6	0	2.8	1.8218	76.725	109.3208	7.8366	7.333	0.5036	0.936	1.4252	0.0912	836.9996	19.8766	42.1106	
40	46	836.6	835.8	0	4.2	2.9996	127.1848	179.978	12.9128	12.167	0.7462	0.9422	1.415	0.0818	836.2838	19.7238	42.4002	
4	576	730.2	729	53.2	2.4	1.4724	61.3188	88.3382	7.2696	6.727	0.542	0.9256	1.4408	0.1072	435.168	10.4486	41.6458	
46	48	835.8	835.2	0	2.6	2.0284	85.1398	121.693	8.7384	8.152	0.5868	0.9328	1.4294	0.0962	835.5734	19.9054	41.9778	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1498.6	1498.8	29	2.2	1.7812	77.765	106.8754	4.279	4.152	0.1276	0.9698	1.374	0.041	749.2684	17.1624	43.6586	
63	18	1631.4	1629.4	127	4	2.742	112.4066	164.5206	6.0534	5.515	0.5384	0.9114	1.4636	0.1302	815.2564	19.8872	41.0082	
68	56	1498.4	1498.6	16.6	1.6	1.2928	56.4722	77.5828	3.1066	3.015	0.0916	0.9704	1.3738	0.0404	749.1788	17.1542	43.6744	
71	63	1631.4	1631.4	499.2	2	2.1394	89.9166	128.3608	4.7206	4.409	0.3114	0.934	1.4276	0.0944	815.7382	19.4084	42.0316	
84	86	1498.8	1499.2	61.2	1.4	3.072	133.9946	184.3248	7.3782	7.152	0.2268	0.9696	1.3754	0.0422	749.4592	17.183	43.618	
104	71	989.2	989.8	10.8	1	1.2	44.239	71.9938	4.3654	3.576	0.7894	0.8196	1.6276	0.2944	816.7168	22.152	36.875	
127	49	138.4	138.8	0	0.2	0.3162	14.004	18.9642	8.2006	8.076	0.125	0.9846	1.354	0.0206	138.728	3.1314	44.3154	
127	68	1497.8	1498.4	29	1.8	1.3708	59.8498	82.255	3.2954	3.197	0.0984	0.9702	1.3744	0.0408	748.8336	17.1526	43.6572	
19	101	1669.6	1669.6	146.2	3.6	3.1278	135.9636	187.6702	6.7446	6.515	0.2296	0.9658	1.3804	0.047	834.7532	19.2036	43.4692	
20	132	7376.4	7375.4	2115.6	23.6	21.1692	1314.532	1270.1568	10.3322	9.871	0.4616	0.9554	0.9664	0.0432	1475.181	23.7564	62.0964	
205	19	1668.6	1669.6	380.4	2.4	2.8518	126.1652	171.1138	6.1496	6.045	0.1042	0.9832	1.356	0.023	834.7784	18.8698	44.2388	
22	639	1748.2	1747.6	148.6	5	4.315	186.6658	258.9004	8.8892	8.545	0.344	0.9616	1.387	0.0536	873.7542	20.1978	43.2592	
237	21	1637.2	1638.4	53	2.2	2.8274	123.7778	169.6482	6.2144	6.045	0.169	0.973	1.3706	0.0374	818.9818	18.708	43.7768	
309	71	643.2	641.6	0	2.2	1.7162	72.7778	102.9702	9.6146	9.061	0.5544	0.9422	1.415	0.0816	642.5874	15.1528	42.407	
36	705	260.2	259.2	0	1	0.2534	11.1646	15.1942	3.5114	3.439	0.072	0.9794	1.3616	0.0278	259.69	5.8902	44.0788	
37	150	528.4	528	0	0.8	0.7926	34.8112	47.5654	5.4026	5.273	0.1302	0.9758	1.366	0.0328	528.17	12.028	43.9186	
39	127	1636.8	1636.2	199.4	3.4	3.1934	139.1648	191.5998	7.0246	6.803	0.2216	0.9684	1.3766	0.0436	669.2076	15.356	43.5798	
50	625	1670.2	1669.2	259	3.6	3.3032	141.976	198.1958	7.1228	6.803	0.3198	0.955	1.396	0.0628	834.781	19.4224	42.9798	
50	628	1507.4	1506.8	110.8	2.6	2.377	143.001	142.6304	5.678	5.255	0.4228	0.9256	0.9974	0.0742	502.3586	8.351	60.163	
51	650	1747.8	1748.2	17.6	1.6	1.4264	89.4036	85.5958	2.9376	2.832	0.1054	0.9642	0.9576	0.0342	874.166	13.9488	62.669	
539	82	2788.8	2788.4	244.2	6	6.381	273.5952	382.8618	8.2372	7.848	0.3888	0.9528	1.3994	0.066	929.5896	21.681	42.8764	
545	51	1748.4	1747.8	189.2	5.8	6.7254	415.1584	403.5254	13.8508	13.154	0.6968	0.9496	0.9722	0.0488	874.0174	14.1588	61.73	
545	59	624.6	624.4	0	0.4	0.4966	28.2696	29.7964	2.8632	2.507	0.3562	0.876	1.0542	0.1312	624.5338	10.9712	56.9364	
565	80	8528.8	8539.6	2783.8	57	61.8524	3740.694	3711.142	26.0988	24.283	1.8154	0.9304	0.992	0.069	1250.8462	20.6826	60.4784	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	624.4	624.4	0	0.8	0.5702	29.2012	34.207	3.2882	3.2882	0	1	1.1716	0	624.2178	12.187	51.2192	
594	76	1678.2	1683	120.2	5.8	6.7918	296.3738	407.5144	14.5462	14.106	0.4402	0.97	1.375	0.0414	840.4158	19.2594	43.6388	
598	81	2787.4	2785.8	53	3	2.1786	94.4642	130.7044	2.8144	2.712	0.1024	0.9638	1.3836	0.0504	928.8126	21.4188	43.3644	
629	50	3179.6	3177.6	546.6	9.2	6.6676	336.5592	400.047	7.5504	5.864	1.6872	0.7768	1.1886	0.2656	794.7372	15.7444	50.4808	
638	97	3176.2	3177.2	158.8	5.6	5.7262	360.4294	343.5646	6.4882	6.283	0.205	0.9684	0.9534	0.0302	1003.7274	15.946	62.9468	
650	22	1748.2	1748.2	1.8	1.8	2.4532	140.3916	147.1902	5.0514	5.0514	0	1	1.0486	0	874.1362	15.2746	57.2284	
7008	4	730.6	730.2	173.8	0.6	0.8198	27.5774	49.1914	3.6694	2.742	0.9268	0.7476	1.7838	0.4508	402.2356	11.9582	33.6344	
76	539	1683	1684.4	37.2	1.4	2.0494	89.2688	122.9812	4.3832	4.242	0.1408	0.9678	1.3774	0.0442	841.6784	19.3256	43.5552	
79	522	3979	3977.4	1952.8	18.2	15.015	957.1102	900.9056	13.3918	13.133	0.2588	0.9804	0.9412	0.0182	1009.094	15.8308	63.7432	
80	602	8539.6	8535.6	1784.2	82.2	73.2396	4524.783	4394.3726	30.8788	29.35	1.529	0.9504	0.9712	0.0482	1423.0912	23.0344	61.7812	
81	565	2785.8	2784.2	113.6	4.6	4.8758	211.528	292.5376	6.3018	6.076	0.2262	0.9642	1.3828	0.0498	928.4024	21.3994	43.3858	
82	202	2788.4	2789.2	72.4	3.6	2.954	128.3514	177.2452	3.8134	3.682	0.1316	0.9654	1.3808	0.0478	929.624	21.3958	43.449	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1499.2	1500.6	94	3.6	4.8216	210.2602	289.3032	11.5702	11.212	0.3576	0.969	1.3762	0.0424	750.1166	17.2018	43.6086	
97	637	3177.2	3178	191	4.2	3.9164	246.7176	234.9858	4.4374	4.301	0.1366	0.969	0.9524	0.0292	794.3102	12.609	62.9968	
100	658	1612.2	1613.2	0	1.8	2.3274	83.3856	139.6522	5.1952	4.653	0.5416	0.8958	1.6746	0.1746	1612.7336	45.0164	35.8334	
101	691	2539.4	2539.2	839.8	5.6	5.1532	224.09	309.1856	7.306	7.061	0.2452	0.9662	1.3796	0.0466	846.3494	19.4622	43.489	
106	107	1144.8	1144.6	119.8	0.6	1.7296	67.423	103.7774	5.4394	4.712	0.7268	0.8664	1.5392	0.2058	725.0374	18.5994	38.9882	
107	590	2652.4	2654.8	1250.2	1.4	3.0878	166.8438	185.2604	4.1892	3.483	0.7068	0.8312	1.1104	0.1872	663.3554	12.2762	54.0348	
109	594	2537.8	2536.2	61.2	6.2	5.3346	230.1212	320.079	7.5708	7.258	0.313	0.9588	1.3906	0.0576	845.5388	19.6014	43.1392	
111	524	3202	3201	251	10.6	11.3346	709.1804	680.0708	12.7496	12.273	0.477	0.9626	0.959	0.036	1066.8016	17.0502	62.5684	
114	115	859.8	859	165.8	2.6	1.6368	62.8466	98.227	6.8552	6.58	0.2754	0.96	1.5628	0.0628	429.8316	11.1968	38.3924	
115	574	859	859.8	288.2	1.4	2.2318	81.7186	133.9008	9.3448	8.557	0.788	0.9156	1.6384	0.1384	443.904	12.1228	36.6288	
123	705	1070.8	1069.6	0	2.6	3.2158	133.9506	192.9602	10.8192	10.015	0.804	0.926	1.4404	0.1072	1069.9848	25.6892	41.6566	
124	711	730.2	730.2	0	0.4	0.8718	36.9302	52.303	4.2974	4.045	0.2518	0.9412	1.4162	0.083	730.306	17.2384	42.3632	
130	401	4481.6	4481.6	267.6	7.6	8.7512	480.5552	525.0714	7.0276	6.432	0.5956	0.9152	1.0926	0.0926	1494.306	27.2124	54.9138	
131	309	643.8	643.2	0	1.4	0.8352	35.834	50.1154	4.6726	4.455	0.218	0.9536	1.3986	0.0652	643.551	15.0004	42.9012	
132	558	7375.4	7369.4	2600.8	26.4	24.5122	1510.824	1470.7226	11.9692	11.35	0.6194	0.9482	0.9736	0.0504	1474.5196	23.923	61.6362	
133	708	1329.6	1328.8	269	1.6	1.9156	84.5926	114.9288	5.1872	5.091	0.0962	0.9814	1.3586	0.0254	664.655	15.0504	44.1636	
136	146	1328.8	1328.4	71.2	2.2	1.9966	83.5724	119.785	5.407	5.03	0.3768	0.9304	1.4332	0.0998	664.5516	15.8752	41.8652	
146	158	1328.4	1327.6	22.2	4.2	3.1078	129.7314	186.4906	8.428	7.818	0.61	0.9278	1.4374	0.1038	663.7414	15.9022	41.7456	
150	151	528	528.2	0	0.6	1.029	44.9308	61.7318	7.009	6.803	0.206	0.9706	1.3738	0.0406	528.3616	12.099	43.6782	
151	155	528.2	527.8	0	0.8	0.6694	29.0022	40.1522	4.5618	4.394	0.1678	0.9632	1.3842	0.051	528.0444	12.1842	43.3464	
155	157	527.8	526.8	0	1.8	1.2126	52.4266	72.7616	8.2788	7.955	0.3242	0.9608	1.3878	0.0544	527.2646	12.1962	43.239	
157	194	526.8	527	0	0.8	0.6916	29.743	41.4852	4.7228	4.515	0.2074	0.9562	1.3946	0.0614	526.99	12.2506	43.0248	
158	178	2189	2188.8	0.2	2.2	2.0996	86.6522	125.9712	3.452	3.167	0.2852	0.9174	1.4536	0.1202	729.7024	17.6802	41.2814	
178	622	193.8	193.6	0	0.2	0.2144	9.4694	12.8786	3.987	3.909	0.078	0.9806	1.36	0.0264	193.7924	4.3928	44.1202	
178	661	1995	1995.2	97	1.8	1.3438	56.6804	80.6346	2.4246	2.273	0.1518	0.9376	1.4224	0.089	997.5758	23.653	42.1826	
189	205	1668.4	1668.6	145.4	1	1.8206	79.9456	109.2322	3.9282	3.833	0.095	0.9758	1.3664	0.033	556.1426	12.6646	43.9128	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
194	197	527	527	0	1.4	1.3046	55.9028	78.2732	8.909	8.485	0.424	0.9528	1.3998	0.0666	527.083	12.3	42.8598	
197	586	527	526.8	0	0.8	0.8596	36.7262	51.5886	5.8734	5.576	0.2976	0.9492	1.4044	0.0712	526.9408	12.3364	42.7222	
198	101	869.4	869.8	0	0.6	1.315	56.6694	78.9024	5.4432	5.212	0.231	0.9572	1.3926	0.0592	869.8086	20.1842	43.0896	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
199	663	1418	1419	196.6	1	1.7194	77.6254	103.1654	4.3646	3.031	1.333	0.6946	1.3292	0.406	709.105	15.7068	45.1472	
200	201	1103.6	1102.8	0	1	1.1382	42.8262	68.3038	3.7148	3.494	0.2206	0.9408	1.5946	0.0946	1103.035	29.3204	37.6252	
201	539	1102.8	1104.4	0	0.6	1.5304	57.2704	91.8364	4.9924	4.67	0.322	0.9356	1.6032	0.1032	1103.6054	29.495	37.421	
202	598	2789.2	2787.4	70.6	3.6	2.435	105.613	146.1004	3.144	3.03	0.1138	0.9638	1.3834	0.05	929.3954	21.428	43.373	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	956.2	955.8	0	1	0.7738	34.3988	46.4192	2.9134	2.879	0.0348	0.9882	1.3494	0.016	955.9212	21.4994	44.465	
208	131	644.6	643.8	0	1	0.5564	24.154	33.3878	3.1102	3	0.1102	0.9644	1.3824	0.049	644.1074	14.839	43.4044	
209	583	955.8	955.8	0	2.6	2.522	103.7562	151.3182	9.4958	8.682	0.814	0.9144	1.4584	0.125	956.0768	23.2392	41.1438	
211	212	353.8	353.6	0	0.6	0.2892	12.526	17.3542	2.9442	2.833	0.1106	0.9624	1.3856	0.052	353.6784	8.1666	43.3082	
212	214	353.6	353.6	0	0.2	0.2454	10.9204	14.7302	2.4986	2.47	0.029	0.9884	1.3488	0.0156	353.7392	7.9524	44.4792	
213	214	271.4	271.6	0	0	0.287	12.1856	17.2212	3.806	3.591	0.215	0.9434	1.4132	0.08	271.4784	6.3944	42.4574	
214	217	625.2	625.2	268.2	0.4	0.33	14.5642	19.8002	1.9004	1.864	0.0366	0.9808	1.3596	0.0262	312.5982	7.083	44.1326	
215	216	1	1	0	0	0.001	0.024	0.0516	1.8384	0.7932	1.0456	0.259	1.284	0.7302	1	0.036	16.8342	
215	651	623.8	623.4	0	0.6	0.688	29.65	41.2958	3.9722	3.803	0.1692	0.9574	1.3926	0.0594	623.711	14.478	43.0802	
217	215	625.2	624.8	2.6	0.6	0.3176	13.7294	19.0598	1.8298	1.758	0.0722	0.9606	1.3882	0.055	312.4642	7.2298	43.2238	
221	614	3207.2	3205.8	397.6	8.2	7.1462	401.9958	428.7774	8.0242	6.944	1.0802	0.8654	1.0668	0.1438	801.5628	14.2494	56.2522	
226	622	1486.4	1485.2	0	2.4	2.4278	111.7036	145.6794	5.8832	5.8832	0	1	1.304	0	1485.6294	32.2912	46.01	
228	701	2386.2	2388.6	941.6	3.6	5.8726	249.5538	352.3544	8.8566	8.364	0.4928	0.9444	1.412	0.0786	1010.4638	23.7784	42.4956	
231	233	2389	2388.4	307.8	2	2.0748	114.4444	124.4838	3.127	3.1258	0.0012	0.9996	1.088	0.0004	796.135	14.433	55.1624	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2388.4	2387.4	67	2.2	1.7268	86.8246	103.6026	2.6036	2.6032	0.0002	0.9998	1.1932	0.0002	795.89	15.8284	50.2852	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2387.4	2386.2	92.8	3.2	1.9392	86.7878	116.3468	2.9248	2.909	0.0158	0.9946	1.3406	0.007	1193.3328	26.6628	44.7592	
235	207	956	956.2	0	0.4	0.4956	25.1742	29.7286	1.8652	1.8652	0	1	1.181	0	478.1278	9.4106	50.8098	
238	109	2539.6	2537.8	72	4.4	3.9372	171.6414	236.2284	5.5832	5.409	0.1742	0.969	1.3764	0.0428	846.1872	19.41	43.5972	
346	557	7038.6	7041	3665	24.6	26.6184	1483.589	1597.1042	13.615	11.675	1.9402	0.8576	1.0764	0.1534	1641.5232	29.452	55.7402	
351	556	7042.2	7036.6	2092.8	13.8	13.8904	841.4132	833.4148	7.1022	6.619	0.4836	0.932	0.9902	0.0672	1760.1678	29.0572	60.5758	
401	411	10355	10352.4	5806.6	65	62.6682	3801.458	3760.095	21.7944	20.339	1.4554	0.9334	0.989	0.066	1725.2618	28.4416	60.6602	
402	130	4476	4481.6	689.2	45.2	46.5782	2460.454	2794.6998	37.199	35.727	1.4718	0.9606	1.1358	0.045	1502.5674	28.4448	52.8242	
411	657	10352.4	10350.6	3352	33.6	30.526	1805.718	1831.5694	10.6156	9.661	0.955	0.91	1.0144	0.0914	1725.333	29.1672	59.1532	
49	7012	138.8	138.2	0	0.8	0.1706	7.5522	10.2306	4.4328	4.364	0.0692	0.9844	1.3546	0.021	138.4572	3.126	44.2998	
522	525	3977.4	3977.8	813.6	20	19.8452	1212.994	1190.7188	17.9596	16.888	1.0712	0.9404	0.9814	0.0584	994.5044	16.2708	61.1226	
524	526	4701.6	4699.2	1582.6	23	20.186	1202.607	1211.1608	15.4618	14.171	1.2902	0.9166	1.007	0.084	1075.5016	18.0524	59.576	
525	527	2908	2908.2	194.8	9.6	9.6582	608.8644	579.502	11.9514	11.591	0.3604	0.9698	0.9518	0.0286	969.7752	15.3834	63.0408	
525	706	1069.8	1069.8	0	5.6	5.19	220.0684	311.4012	17.4614	16.455	1.007	0.9424	1.415	0.0816	1069.945	25.2332	42.4056	
526	523	4699.2	4698.4	389	20.2	18.694	1168.228	1121.6516	14.3256	13.773	0.5526	0.9614	0.96	0.037	1174.456	18.7938	62.4916	
527	537	2908.2	2906.2	1514.4	13	11.4928	724.3768	689.5542	14.2356	13.804	0.4312	0.9696	0.9522	0.029	896.9766	14.231	63.031	
528	111	3202	3202	198.2	8.8	9.3446	584.758	560.6782	10.5034	10.112	0.3914	0.9626	0.9588	0.0358	1067.6074	17.0606	62.5772	
529	541	2908.6	2910.2	337.8	5.6	6.6804	382.447	400.8206	8.2646	7.28	0.9854	0.881	1.048	0.1248	727.4206	12.7062	57.2534	
535	529	2908.8	2908.6	130.4	2.8	3.3466	208.7914	200.8062	4.142	3.976	0.1666	0.9598	0.9616	0.0386	727.1892	11.6564	62.3874	
536	615	4271.4	4269.6	1676.6	3.8	3.3942	182.8012	203.6624	2.8614	2.371	0.4904	0.8284	1.1142	0.191	1067.6878	19.8254	53.8548	
537	535	2906.2	2908.8	433	3.4	4.9398	309.4508	296.384	6.1166	5.895	0.2214	0.964	0.9578	0.0348	726.8234	11.6022	62.6466	
538	586	1806.4	1807	131	1.6	2.4566	156.401	147.4098	4.8946	4.794	0.1012	0.9794	0.9424	0.0194	602.333	9.4618	63.6598	
541	538	1805	1806.4	538.2	2.2	2.6872	171.005	161.2258	5.3568	5.245	0.1122	0.9792	0.9428	0.0196	601.9372	9.4588	63.6396	
541	596	1105.2	1104.4	0	1.8	1.2116	45.1846	72.6966	3.9478	3.682	0.266	0.9328	1.6084	0.1084	1104.5142	29.6172	37.3076	
542	548	7956.4	7957.4	575	14.8	16.3704	834.8812	982.2298	7.406	5.811	1.5948	0.7848	1.1764	0.2534	1989.2474	39.0054	51.0126	
542	554	2390	2389.8	36.4	2	1.145	65.625	68.6808	1.7244	1.648	0.0766	0.9556	1.0464	0.0464	1194.8252	20.8412	57.332	
544	536	2660.2	2658.8	348.4	5.8	5.9458	374.1934	356.7524	8.0496	7.794	0.256	0.9682	0.9536	0.0304	886.3794	14.0846	62.9334	
547	566	1611.6	1611.4	0	2.2	2.299	113.5326	137.9248	5.1358	4.612	0.524	0.8982	1.2146	0.124	1611.4328	32.6276	49.3884	
547	711	4805.6	4805.4	138.6	4.6	5.1234	311.2236	307.3988	3.8386	3.587	0.2512	0.9344	0.9878	0.0648	1601.6188	26.3656	60.7478	
548	580	7957.4	7958.4	222.8	10.2	11.3672	605.912	682.033	5.142	4.217	0.925	0.82	1.1258	0.2026	1989.5616	37.3252	53.307	
549	226	1487	1486.4	0	3.2	2.5642	132.6226	153.847	6.208	5.839	0.369	0.9406	1.1598	0.0692	1486.7254	28.7444	51.7326	
549	595	5053.8	5053.6	138.8	7.4	7.2266	441.232	433.602	5.148	4.836	0.3124	0.9394	0.9826	0.0596	1684.5296	27.5902	61.0564	
553	351	7048.2	7042.2	2427.2	30.2	27.1114	1603.89	1626.6714	13.8526	12.608	1.2444	0.91	1.0142	0.0912	1433.4016	24.2292	59.161	
554	231	2389.8	2389	45.6	3.6	2.186	124.9012	131.1626	3.2934	3.136	0.1572	0.9522	1.0502	0.0502	1194.7072	20.91	57.1378	
556	346	7036.6	7038.6	1477.2	12.6	12.1288	725.048	727.7254	6.2046	5.706	0.4986	0.9194	1.0038	0.0806	1759.3072	29.43	59.7788	
557	802	1487.4	1487.6	0	0.4	1.34	56.057	80.395	3.2428	3.015	0.2276	0.9298	1.4338	0.1006	1487.3462	35.5516	41.8408	
557	804	5553.6	5553.8	329.8	8.4	9.1718	528.057	550.3056	5.9448	5.266	0.6788	0.8858	1.0422	0.1192	1388.5158	24.117	57.5808	
558	559	7369.4	7371.2	1104.4	19.6	22.818	1393.19	1369.0886	11.1446	10.469	0.6762	0.9394	0.9828	0.0596	1474.1566	24.1442	61.0566	
559	560	6413.6	6416.2	827	25.8	27.1708	1656.197	1630.2486	15.246	14.297	0.949	0.938	0.9842	0.061	1603.947	26.3136	60.9556	
559	561	957.6	956.4	0	2.2	1.4914	84.9874	89.4832	5.6114	5.33	0.282	0.9498	1.053	0.053	956.7872	16.79	56.9852	
560	547	6416.2	6417.2	450.2	13.2	15.4524	924.7896	927.145	8.6698	7.983	0.6872	0.9208	1.0024	0.0794	1604.1022	26.8032	59.8476	
561	577	956.4	955.4	0	3	2.962	167.6522	177.7206	11.1546	10.523	0.632	0.9434	1.0602	0.0602	955.9424	16.8892	56.6014	
562	564	5539.8	5538.6	796.8	6.2	6.2712	360.877	376.282	4.0758	3.608	0.4676	0.8854	1.0426	0.1194	1430.503	24.8596	57.5472	
563	600	5745.8	5745.8	370.6	6.2	7.1688	420.0568	430.1106	4.4916	4.049	0.4426	0.9014	1.0238	0.1008	1436.4634	24.5142	58.5982	
564	563	4912	4910.6	215	10.4	10.9478	663.114	656.8574	8.0258	7.479	0.5468	0.932	0.9906	0.0676	1636.8588	27.0234	60.5726	
564	603	626.6	626	0	3.4	2.0664	92.954	123.988	11.8676	11.843	0.0246	0.998	1.3338	0.003	626.8174	13.9346	44.9856	
566	570	1611.4	1611.6	0	1	1.5146	71.7168	90.8612	3.3832	3.205	0.1786	0.947	1.2668	0.0668	1611.3394	34.0246	47.3584	
568	536	1613.6	1612.6	0	2	2.577	106.3312	154.6036	5.75	5.273	0.477	0.9172	1.4542	0.1204	1613.3006	39.095	41.2662	
569	544	2657.2	2660.2	472	4.8	6.85	434.0222	410.9968	9.2758	9.042	0.2338	0.975	0.947	0.024	886.1706	13.9862	63.3616	
570	100	1611.6	1612.2	0	1.8	1.7594	75.714	105.5702	3.9294	3.758	0.172	0.9562	1.3944	0.061	1611.9726	37.4604	43.0332	
574	158	859.8	861.4	0	0.6	1.4892	55.7568	89.356	6.2268	5.83	0.3974	0.9362	1.6024	0.1024	860.8086	22.9922	37.448	
576	124	729	730.2	0	2.6	3.6548	156.2666	219.2888	18.0376	17.136	0.9014	0.95	1.4034	0.0702	729.5194	17.0624	42.7526	
577	235	955.4	956	0	0.6	0.5312	29.5058	31.877	2.0012	2.0012	0	1	1.0802	0	477.8848	8.6046	55.5384	
580	549	6538.2	6540.8	1908.6	21.4	25.2512	1447.847	1515.0734	13.9006	12.262	1.6384	0.8822	1.0462	0.1232	1907.8188	33.2734	57.3394	
580	581	1420.2	1419.2	31.6	1.4	1.2916	69.0996	77.4942	3.2752	3.186	0.0892	0.9728	1.1214	0.0306	709.8146	13.2674	53.501	
581	582	1419.2	1419.2	16.6	1.4	1.6006	81.4638	96.0472	4.0596	4.0596	0	1	1.179	0	709.7812	13.9474	50.89	
582	199	1419.2	1418	3	1.8	1.0648	49.7084	63.896	2.7024	2.7024	0	1	1.2856	0	709.355	15.1968	46.6782	
583	584	955.8	954.6	0	2.2	1.7224	81.0518	103.351	6.4914	4.699	1.7918	0.724	1.2748	0.3518	955.254	20.3012	47.0574	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2020

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
584	585	2374	2373.4	804.2	3.2	2.6436	155.9774	158.6072	4.0098	3.64	0.3698	0.9078	1.0168	0.0938	791.1234	13.4078	59.006	
585	620	2373.4	2372.8	560.8	2.8	2.458	149.2358	147.4646	3.728	3.483	0.2454	0.9342	0.988	0.065	791.1288	13.029	60.7226	
586	587	2333.8	2336	987.8	1.6	4.0194	240.1098	241.1688	6.1976	5.696	0.502	0.9192	1.0046	0.0814	583.6924	9.771	59.7376	
587	588	2336	2336.4	67.4	4.6	3.587	223.8328	215.229	5.5292	5.308	0.2214	0.9602	0.9616	0.0386	583.9118	9.3578	62.399	
588	611	2336.4	2335.8	31.2	3.2	3.2892	198.6816	197.3568	5.068	4.71	0.3586	0.9294	0.9934	0.0704	584.0972	9.6702	60.404	
590	591	2654.8	2654	311.6	4.4	3.9522	228.7462	237.1324	5.36	4.773	0.5872	0.8906	1.0368	0.1138	725.3934	12.5332	57.8802	
591	592	2654	2655.6	111.4	3	4.4288	274.0186	265.7206	6.0058	5.717	0.2888	0.952	0.97	0.0468	884.9044	14.3018	61.8742	
592	569	2655.6	2657.2	61.4	2.8	3.4086	215.3268	204.5088	4.6192	4.49	0.1298	0.9718	0.9498	0.0266	885.4568	14.0164	63.1746	
594	114	858	859.8	39.2	0.6	1.2492	48.6496	74.955	5.234	5.097	0.1372	0.9738	1.5404	0.0404	429.5478	11.0302	38.95	
595	553	5053.6	5052.4	141.4	8.2	7.5324	461.2914	451.9566	5.3664	5.056	0.3104	0.942	0.98	0.057	1684.3834	27.505	61.2394	
596	200	1104.4	1103.6	0	1.6	1.405	52.688	84.307	4.5814	4.295	0.2856	0.9378	1.5998	0.0998	1103.9384	29.4408	37.5056	
599	528	4269.8	4271.6	613.4	9.6	8.9696	516.8568	538.1742	7.5608	6.703	0.8582	0.8864	1.0412	0.1182	877.7752	15.233	57.6242	
600	565	5745.8	5744.6	288.2	12	11.5628	706.2622	693.7732	7.2444	6.808	0.4368	0.9396	0.9824	0.0594	1436.466	23.5178	61.0808	
601	401	5866.8	5873.4	1172.4	88.6	89.5706	5473.459	5374.2446	54.706	51.43	3.2758	0.94	0.982	0.059	1964.774	32.1524	61.108	
610	636	1458.4	1458.2	125.4	2.6	2.4948	159.389	149.6912	6.158	6.052	0.1054	0.9828	0.9392	0.0162	486.1786	7.6098	63.887	
611	156	877.8	877.8	0	0.6	1.2316	54.5272	73.8812	5.0494	4.97	0.0796	0.9842	1.3546	0.0214	877.7558	19.8218	44.2944	
611	612	1458	1458.4	28.8	1.4	1.5646	99.9696	93.8798	3.863	3.797	0.066	0.983	0.939	0.0158	486.0398	7.6074	63.8914	
612	610	1458.4	1458.4	27	1.6	1.483	94.762	88.9792	3.6598	3.598	0.0618	0.983	0.939	0.0158	486.2416	7.6094	63.899	
614	644	3205.8	3207	139.6	6.2	6.1826	383.7084	370.958	6.9434	6.629	0.3138	0.9548	0.967	0.0438	801.416	12.913	62.0626	
615	599	4269.6	4269.8	362.6	4.6	4.1874	240.9878	251.2398	3.5306	3.126	0.4046	0.8854	1.0426	0.1196	1067.4622	18.548	57.5524	
620	545	2372.8	2373	47	1.4	2.2726	129.4504	136.3402	3.4468	3.021	0.4258	0.877	1.0532	0.13	791.0854	13.8864	57.0068	
622	188	1678.8	1680.4	315.2	1.2	2.3734	101.1716	142.4244	5.0872	4.818	0.2688	0.9472	1.4076	0.0746	839.9166	19.7066	42.6222	
625	189	1669.2	1668.4	14.2	2.6	1.8142	79.9572	108.8506	3.914	3.833	0.0806	0.9796	1.3614	0.028	556.2244	12.6202	44.0736	
626	627	1505.6	1505.8	51.8	1.8	2.2468	143.163	134.812	5.3716	5.266	0.106	0.9804	0.9416	0.0186	501.9252	7.8774	63.7178	
627	107	1505.8	1507.8	113.2	3.8	4.5532	290.4646	273.1994	10.8802	10.678	0.202	0.9816	0.9404	0.0174	502.1786	7.8722	63.7936	
628	626	1506.8	1505.6	48	3	1.7548	110.669	105.2864	4.1944	4.07	0.1244	0.9704	0.9512	0.0282	502.0032	7.9598	63.069	
631	568	1613.8	1613.6	0	3	2.6648	111.5714	159.8922	5.9442	5.53	0.4138	0.9302	1.4332	0.0996	1613.9642	38.5492	41.8682	
636	639	1458.2	1459.2	108.8	3	4.2636	272.063	255.8192	10.525	10.332	0.193	0.9816	0.9406	0.0172	486.1226	7.618	63.8102	
637	629	3178	3179.6	1508.2	3	5.3076	328.1684	318.4704	6.01	5.717	0.2934	0.9512	0.9704	0.0472	794.8296	12.8558	61.8286	
638	738	786.6	786.6	0	0.6	1.1864	50.951	71.1882	5.4288	5.182	0.247	0.9546	1.3968	0.0636	786.6152	18.3176	42.957	
639	221	3206.8	3207.2	1436	3.4	4.3372	183.4196	260.2268	4.8692	3.168	1.7014	0.6508	1.4192	0.496	701.27	16.5822	42.295	
644	645	3207	3203.6	132.6	7.8	6.77	426.678	406.214	7.6054	7.374	0.2314	0.9696	0.9522	0.029	801.159	12.7122	63.0232	
645	649	3827.8	3833.2	1412	25.6	28.5152	1766.831	1710.908	26.7944	25.542	1.2526	0.9532	0.9686	0.0452	885.092	14.2846	61.9624	
647	638	3966.4	3962.8	159	11.4	7.9786	484.3466	478.7148	7.2444	6.766	0.4786	0.934	0.9886	0.0652	991.2212	16.3282	60.7058	
648	647	3964	3966.4	2274.6	21.8	23.0186	1458.481	1381.123	20.693	20.171	0.522	0.9748	0.9472	0.024	1001.1414	15.8006	63.3608	
651	645	623.4	624.2	0	0.4	0.9634	41.226	57.7966	5.5598	5.288	0.272	0.9512	1.402	0.0688	623.7072	14.5734	42.798	
657	542	10350.6	10346.4	6416.8	78.4	80.477	4382.371	4828.6314	27.9966	23.455	4.5422	0.838	1.1018	0.1788	1724.7256	31.6724	54.4602	
658	659	1613.2	1613.4	0	1.8	1.7914	61.721	107.492	3.9976	3.443	0.5542	0.8614	1.7416	0.2416	1613.3008	46.8282	34.4568	
659	631	1613.4	1613.8	0	2.8	2.68	104.8108	160.8002	5.9796	5.197	0.7826	0.869	1.5342	0.2008	1613.4148	41.2546	39.1108	
661	553	1995.2	1995.8	168.8	1.8	1.993	89.2112	119.5668	3.5938	3.218	0.3756	0.8954	1.3404	0.1404	997.9532	22.292	44.7734	
663	584	1419	1419.4	72.2	1.6	1.813	99.9992	108.7924	4.599	3.902	0.697	0.8486	1.0876	0.1646	709.6724	12.868	55.1504	
691	238	2539.2	2539.6	184	3	3.7476	163.0256	224.8578	5.313	5.136	0.1768	0.9666	1.3792	0.046	846.3876	19.4568	43.5034	
701	236	752.6	752.4	0	1.6	0.804	35.1956	48.2372	3.8466	3.742	0.1046	0.973	1.3704	0.0374	752.3572	17.1856	43.7784	
701	237	1636	1637.2	37	1.2	1.6822	73.7652	100.9264	3.7004	3.606	0.0944	0.9744	1.3684	0.0348	818.2364	18.6588	43.853	
705	133	1328.8	1329.6	564	2.2	2.6398	113.5728	158.3908	7.147	6.833	0.314	0.9564	1.3946	0.0612	664.8156	15.4528	43.0244	
706	123	1069.8	1070.8	0	5.2	5.6004	235.1368	336.0302	18.8362	17.576	1.2604	0.933	1.429	0.0956	1070.278	25.492	41.9892	
708	136	1328.8	1328.8	218.8	3.2	3.2174	137.3792	193.0414	8.7182	8.273	0.4452	0.9492	1.4052	0.0716	664.2498	15.5564	42.7034	
711	562	5535.6	5539.8	1167.8	9	14.0426	778.1112	842.5622	9.1292	7.783	1.3462	0.8526	1.0826	0.1596	1453.796	26.237	55.4262	
804	801	3166.2	3169.2	106.8	3.4	4.7218	291.5904	283.3102	5.3662	5.098	0.2682	0.95	0.9716	0.0486	1055.9642	17.0996	61.7532	
804	803	2387.6	2387.6	72.8	2.4	2.1558	121.647	129.3472	3.25	3.057	0.1932	0.9404	1.0632	0.0632	1193.8612	21.1572	56.437	
156	7010	877.8	877.8	0	1	0.9478	40.237	56.8698	3.8862	3.667	0.2194	0.9438	1.413	0.0798	877.8976	20.68	42.4612	
188	7002	1680.4	1681.4	0	0.6	1.2026	52.2106	72.1474	2.5752	2.485	0.0904	0.965	1.3818	0.0486	840.464	19.3566	43.4196	
192	7007	624.4	624.6	0	0.2	0.6994	31.3476	41.964	4.0316	4.0148	0.0166	0.9958	1.3386	0.0056	624.585	13.9352	44.8178	
236	7013	752.4	753.2	0	0.6	0.855	36.366	51.2942	4.0866	3.864	0.2232	0.9456	1.4104	0.0768	752.9892	17.7016	42.5452	
528	7005	1069.6	1070	0	1.8	1.7628	69.92	105.7602	5.93	5.881	0.0496	0.9914	1.5126	0.0126	535.0392	13.4882	39.6662	
603	7009	626	627.6	0	1.2	1.7862	78.3162	107.169	10.263	10	0.263	0.9744	1.3684	0.035	626.5302	14.289	43.848	
7001	106	1146.6	1144.8	469	3.4	1.5722	54.7634	94.3326	4.58	3.545	1.0344	0.7742	1.7224	0.3892	617.8416	17.7378	34.8364	
7004	198	869.4	869.4	0	0.8	1.0076	37.918	60.443	3.8406	3.212	0.6282	0.8364	1.5942	0.261	944.374	25.0896	37.6382	
7006	104	987.4	989.2	509.4	0.8	1.6278	49.522	97.6674	5.5136	3.727	1.7864	0.6764	1.9724	0.639	531.4556	17.469	30.4396	
7011	208	645	644.6	0	0.8	0.7052	27.068	42.3116	3.606	3.076	0.5306	0.853	1.5632	0.2302	704.0416	18.3418	38.382	
7015	211	353.4	353.8	0	0.2	0.3302	11.8268	19.8086	3.007	2.394	0.613	0.7962	1.6748	0.3416	395.2248	11.0326	35.8278	
7016	213	271.4	271.4	0	0.2	0.1832	6.3412	11.002	2.0702	1.591	0.4792	0.7684	1.735	0.4014	318.878	9.221	34.5854	
738	7018	786.6	785.8	0	1	0.7192	30.6718	43.1472	3.2924	3.121	0.1712	0.948	1.4064	0.0732	786.1502	18.4318	42.661	
802	7026	1487.6	1487.8	0	1.6	1.8536	74.958	111.2316	4.4852	4.03	0.4552	0.8988	1.4838	0.1502	1487.8858	36.7984	40.4372	
803	7025	2387.6	2387.6	0	2.6	2.662	145.6212	159.7218	4.0132	3.992	0.0214	0.9946	1.0968	0.0058	1193.914	21.8252	54.7082	

NO BUILD 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
1	563	1254.4	1255	0	1.4	1.0822	44.4362	64.9244	3.1046	2.833	0.2714	0.9126	1.4612	0.1276	1254.6674	30.5526	41.0668	
202	1	1253.4	1254.4	0	1.4	1.8504	76.2318	111.013	5.3122	4.864	0.4484	0.9156	1.4564	0.123	1253.9068	30.4336	41.2016	
21	39	978.4	978.4	0	1.8	2.1286	87.105	127.7178	7.8312	7.121	0.71	0.911	1.4662	0.133	978.5426	23.9132	40.9922	
36	40	1702.2	1701.4	225.2	4	3.4346	145.3252	206.0808	7.2676	6.833	0.434	0.9402	1.4184	0.0844	850.6844	20.1054	42.3112	
39	42	978.4	975.4	0	4.6	2.452	76.075	147.1108	9.0318	6.227	2.8044	0.6916	1.9338	0.6006	977.3138	31.4984	31.128	
40	48	1701.4	1701.4	52.4	3.4	3.6524	152.6812	219.1432	7.7306	7.182	0.549	0.929	1.435	0.102	850.3756	20.3426	41.8058	
44	88	9014.2	9015	124	15.6	16.2874	1031.214	977.2506	6.5044	6.336	0.1688	0.974	0.9478	0.0248	1802.9176	28.4762	63.3132	
4	576	576.6	577.2	42.2	1	1.1544	48.5204	69.2604	7.2026	6.727	0.4752	0.9342	1.4276	0.094	344.3388	8.1922	42.0352	
59	82	2114	2114.6	144.8	2	4.0146	165.4266	240.8728	6.8336	6.258	0.576	0.916	1.4562	0.1228	1057.4484	25.662	41.2138	
84	86	1914.2	1914.2	49	2.2	2.804	121.0852	168.2426	5.274	5.061	0.213	0.9598	1.3896	0.056	957.079	22.1638	43.1812	
137	44	9011.4	9014.2	99.6	11.8	13.6198	846.4664	817.196	5.2218	4.993	0.2288	0.9562	0.9654	0.0424	1877.876	30.2158	62.1492	
18	133	1252	1251.2	0	2.4	3.2074	132.7688	192.4492	9.2244	8.485	0.7394	0.9198	1.4494	0.1162	1251.8178	30.2422	41.3934	
18	198	280.8	280.8	0	0.4	0.2664	11.7558	15.998	3.4178	3.348	0.0692	0.9798	1.361	0.0274	280.861	6.3702	44.091	
19	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
195	18	1531.6	1532.8	78.6	1	2.844	111.4646	170.6392	6.6798	5.818	0.8616	0.8714	1.5308	0.1974	766.3188	19.5524	39.1992	
197	37	583	582.8	0	0.4	0.594	26.0536	35.6362	3.6678	3.576	0.0918	0.9748	1.3676	0.0342	582.8946	13.288	43.8716	
200	36	1702.8	1702.2	397.2	3.6	2.6674	116.6972	160.0426	5.6416	5.485	0.1568	0.9722	1.3714	0.0382	851.0518	19.4526	43.75	
218	22	2438.2	2438.2	55.6	1.2	1.7678	108.5096	106.0654	2.6102	2.465	0.1452	0.9444	0.9774	0.0544	1219.0012	19.8592	61.3838	
222	51	1169.4	1168	0	2.2	1.3952	71.7234	83.711	4.2976	4.2976	0	1	1.1672	0	1168.8248	22.7364	51.4088	
22	257	2438.2	2439.2	23.2	0.8	1.5998	98.3936	95.984	2.3612	2.234	0.1268	0.9464	0.9756	0.0526	1219.5234	19.8278	61.5078	
226	49	1497.4	1496	0	4	2.4456	106.8766	146.7224	5.8816	5.712	0.1692	0.9714	1.3728	0.0394	1496.839	34.248	43.7056	
229	58	1913.8	1912.8	0	2	2.001	72.8386	120.0584	3.7648	3.426	0.3386	0.9104	1.6484	0.1484	1913.3718	52.563	36.4082	
230	57	1913.4	1912	0	3.8	3.2988	127.5268	197.9242	6.208	5.333	0.8748	0.859	1.5518	0.2188	1912.901	49.481	38.6608	
244	84	1913.6	1914.2	68.8	5.8	4.2614	184.547	255.6852	8.0138	7.712	0.3018	0.9622	1.3854	0.052	957.1808	22.1024	43.3064	
249	59	2113.2	2114	557.8	2.2	3.076	127.6926	184.5584	5.2396	4.833	0.4062	0.9222	1.4456	0.112	1056.767	25.4562	41.5128	
32	199	1422.4	1423.4	0	1.6	1.9314	79.24	115.8856	4.886	4.455	0.4314	0.9116	1.4626	0.129	1423.0854	34.6868	41.028	
37	537	582.8	582.6	0	0.2	0.402	17.6604	24.1184	2.4826	2.424	0.0586	0.9764	1.3656	0.0322	582.7922	13.2652	43.94	
48	207	1701.4	1701.6	1.4	0.6	1.304	54.7794	78.2368	2.759	2.576	0.183	0.9336	1.4282	0.0948	850.6894	20.2496	42.0136	
49	136	1956.4	1957.6	254	1.4	1.5326	65.2348	91.9698	2.8196	2.667	0.1528	0.9458	1.4098	0.0766	978.5218	22.9926	42.5576	
50	628	3684.6	3684.4	97.8	8.2	6.9762	422.1742	418.5788	6.8164	6.346	0.4702	0.931	0.9914	0.0684	1842.215	30.442	60.5164	
565	80	9930.8	9937.8	3162.8	68.4	72.7734	4356.831	4366.409	26.3644	24.283	2.0812	0.9212	1.0022	0.079	1456.8758	24.3346	59.8692	
57	568	1912	1911.2	0	2.8	2.2642	94.1362	135.8558	4.264	3.939	0.3246	0.924	1.4432	0.11	1911.6882	45.9816	41.5744	
58	230	1912.8	1913.4	0	1.6	2.5546	87.673	153.2664	4.807	4.125	0.682	0.8582	1.7482	0.2482	1912.862	55.733	34.3272	
596	76	1246.8	1247.2	0	2	2.6396	97.3466	158.3786	7.617	7.023	0.5942	0.922	1.627	0.127	1247.548	33.8284	36.8794	
598	81	3288	3286.6	70	3.4	2.5866	111.428	155.1998	2.8332	2.712	0.121	0.9574	1.393	0.0594	1095.606	25.4328	43.079	
610	21	978.4	978.4	0	1	1.3016	55.7852	78.0816	4.7876	4.561	0.2268	0.9528	1.3996	0.0662	978.558	22.8278	42.8686	
629	50	3684.4	3684.6	94.4	6	6.1662	374.0694	369.9724	6.0242	5.622	0.4016	0.9332	0.989	0.066	1842.4316	30.371	60.6656	
63	251	843.6	843.2	0	0.6	0.7156	31.153	42.9358	3.054	2.955	0.1	0.9674	1.3782	0.0448	843.5212	19.3762	43.5322	
638	97	3683.4	3684	109.2	6.8	6.8584	417.8964	411.5114	6.7028	6.283	0.4198	0.9374	0.9848	0.0616	1841.8146	30.228	60.9316	
661	49	459.4	460.4	0	0.2	0.5658	24.6398	33.9506	4.4312	4.288	0.1434	0.9678	1.378	0.0444	459.712	10.557	43.545	
7008	4	576.6	576.6	133.8	0.6	0.5884	21.7686	35.3122	3.3366	2.742	0.5944	0.822	1.6224	0.289	317.5088	8.5842	36.9884	
706	32	1421.4	1422.4	0	7.4	7.702	318.0186	462.1164	19.5008	17.894	1.6068	0.9178	1.453	0.12	1421.7934	34.4338	41.2918	
76	190	1247.2	1247.2	0	2.4	2.2114	82.4202	132.6782	6.3842	5.949	0.4352	0.9318	1.6096	0.1096	1246.9324	33.4546	37.2724	
79	522	4681.4	4680.6	1381.6	18.2	17.9486	1127.111	1076.9124	13.5936	13.133	0.4608	0.9662	0.9556	0.0324	1584.4366	25.231	62.797	
80	602	9937.8	9930.6	1956.4	87.4	85.9818	5265.405	5158.9162	31.1522	29.35	1.8026	0.942	0.9798	0.0568	1656.0244	27.0422	61.239	
81	565	3286.6	3286.2	143.4	7.4	5.7912	249.587	347.4758	6.344	6.076	0.2682	0.9578	1.3922	0.0588	1095.4436	25.4182	43.098	
82	195	1532	1531.6	688.4	1.6	2.4816	104.7268	148.895	5.832	5.47	0.3624	0.9378	1.4218	0.0882	765.8698	18.1476	42.2044	
82	197	582.6	583	0	0.4	0.5282	22.3014	31.7014	3.2624	3.061	0.2018	0.938	1.4212	0.0878	582.9282	13.8104	42.2168	
84	246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1914.2	1912.8	124.8	7.4	6.0824	262.4942	364.9464	11.4386	10.97	0.469	0.959	1.3906	0.0568	957.1614	22.179	43.1554	
88	132	9015	9013.2	2311.8	26.2	25.775	1606.418	1546.4968	10.2942	9.871	0.4238	0.9588	0.9626	0.0396	1802.7392	28.925	62.3248	
97	637	3684	3684	55.2	3.8	3.863	235.8146	231.7912	3.7752	3.545	0.2298	0.939	0.983	0.06	1841.8666	30.1736	61.0422	
100	701	3001.8	2991.2	1243.4	16.4	10.8938	204.9542	653.6184	13.1958	5.47	7.726	0.4838	3.2168	1.8836	1009.4768	53.6554	21.7696	
101	150	804.6	805.6	0	0	0.9906	42.0746	59.4356	4.4276	4.182	0.2456	0.9446	1.4116	0.0782	804.9084	18.9506	42.5072	
104	221	1614	1613.4	0	2	2.4328	145.1326	145.979	5.4292	4.983	0.4464	0.9178	1.0058	0.0826	1613.2628	27.0446	59.6532	
106	107	5440.2	5442.8	520	4.4	7.0818	417.4452	424.9114	4.684	4.248	0.436	0.9072	1.0178	0.0946	1360.5624	23.0814	58.9534	
107	590	5442.8	5443.2	1399.2	8.8	9.5052	576.2816	570.2992	6.286	5.864	0.4226	0.9328	0.9894	0.0664	1360.8086	22.4446	60.6316	
109	190	2038	2037	36.4	3.2	3.1264	134.6676	187.586	5.5242	5.288	0.2364	0.9572	1.393	0.0594	1018.6884	23.6498	43.0764	
111	524	3321.2	3318	299.2	12.8	11.8292	735.72	709.7568	12.8258	12.273	0.5532	0.9568	0.9646	0.0416	1106.7242	17.7944	62.196	
114	189	928	928	0	0.6	0.8504	42.5412	51.0184	3.2978	3.2938	0.004	0.9988	1.1992	0.0014	928.1758	18.552	50.0342	
115	661	2631.6	2635.6	0.2	2	2.9332	124.196	176.003	4.0096	3.773	0.2372	0.9408	1.417	0.0838	877.8502	20.734	42.3402	
123	211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	711	577.2	577.4	0	0.4	0.8468	36.0868	50.8094	5.28	5	0.28	0.9468	1.4078	0.0746	577.3906	13.549	42.6134	
130	401	5371.2	5359.2	297.4	23.4	13.551	575.1454	813.0606	9.1258	6.432	2.6938	0.7556	1.4188	0.4188	1788.438	42.1376	45.3312	
131	101	804.2	804.6	0	0	0.7268	29.2512	43.62	3.251	2.909	0.342	0.8952	1.49	0.1568	804.414	19.9926	40.2706	
132	558	9013.2	9015.4	3008.8	28.8	30.5746	1847.38	1834.4684	12.2094	11.35	0.8596	0.9298	0.993	0.07	1802.9884	29.84	60.4226	
133	201	1251.2	1252.2	0	3	4.5454	189.6362	272.7218	13.0742	12.121	0.9532	0.927	1.438	0.1048	1251.5972	29.9994	41.7202	
145	109	2037.2	2038	21.8	1.8	1.9002	82.1844	114.0126	3.3578	3.227	0.1304	0.961	1.3874	0.054	1018.6218	23.5518	43.251	
145	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	106	805.6	806.6	0	1.2	1.371	65.3292	82.2622	6.1202	4.49	1.6306	0.7336	1.2582	0.3352	805.9292	16.9136	47.6856	
182	188	2039.4	2038.4	50.4	5	3.5964	156.417	215.7806	6.3488	6.136	0.2122	0.9666	1.3796	0.046	679.7372	15.6286	43.495	
188	145	2038.4	2037.2	26.2	2.6	1.9464	84.51	116.783	3.4392	3.318	0.1208	0.9646	1.3818	0.0486	679.1664	15.6422	43.4192	
189	205	928	928.4	0	0.6	0.9606	42.7176	57.635	3.7256	3.682	0.0438	0.988	1.3492	0.0158	928.1832	20.8718	44.472	
190	191	3284.2	3287.4	212.6	3.6	4.806	202.2472	288.3632	5.2656	4.924	0.3412	0.9352	1.4258	0.0926	1095.247	26.0266	42.0826	
191	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
191	598	3287.4	3288	225.4	7.2	8.4086	362.9278	504.521	9.2094	8.833	0.3762	0.959	1.3904	0.0564	1095.6308	25.3846	43.1616	
198	200	1703.6	1702.8	690.6	4.4	3.8096	162.933	228.5632	8.0498	7.652	0.3986	0.9506	1.403	0.0694	851.7676	19.9144	42.7724	
199	198	1423.4	1422.8	0	2.2	1.6022	65.7604	96.1336	4.0532	3.697	0.3562	0.912	1.4618	0.1284	1423.0166	34.6712	41.045	
201	202	1252.2	1253.4	0	3.4	3.1534	130.6928	189.2068	9.0646	8.348	0.7164	0.921	1.4478	0.1146	1252.3732	30.2182	41.4444	
203	209	1636.4	1636.2	0	3.8	3.7814	150.9192	226.8918	8.3192	7.379	0.9402	0.8868	1.5032	0.17	1636.249	40.999	39.9144	
203	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

NO BUILD 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
205	206	928.4	929.2	0	0.4	0.874	34.478	52.4506	3.3878	3.341	0.0468	0.9862	1.5212	0.0212	928.7928	23.5492	39.4464	
206	207	929.2	928.8	0	1.2	0.8306	32.7358	49.8324	3.217	1.951	1.266	0.6066	1.522	0.599	929.2756	23.5766	39.4202	
207	115	2630.4	2631.6	0.6	3.2	2.7624	117.587	165.7406	3.78	3.576	0.204	0.946	1.4096	0.076	876.9192	20.6004	42.5698	
209	210	1636.2	1636.2	0	1.8	2.1078	86.1516	126.4602	4.6368	4.212	0.4248	0.9086	1.4678	0.1342	1636.255	40.0306	40.879	
210	212	1636.2	1635.2	0	3	3.3402	138.794	200.4112	7.3508	6.788	0.5628	0.9234	1.444	0.1108	1635.7864	39.3664	41.5548	
211	235	1635.4	1636	0	1	1.0278	50.4978	61.6608	2.2614	2.223	0.0388	0.9828	1.221	0.021	817.8816	16.6444	49.1422	
212	214	3608.2	3606.4	1135.8	4.2	3.647	193.3256	218.8326	3.6404	2.969	0.6718	0.8156	1.132	0.209	1202.3074	22.6826	53.0068	
213	212	1975.6	1973	68.8	5.2	2.7798	163.4606	166.7858	5.0668	4.584	0.4828	0.905	1.0204	0.0972	987.4976	16.7928	58.8048	
214	215	3606.4	3604	691.2	7.6	5.7506	338.685	345.041	5.7422	5.203	0.5392	0.906	1.0188	0.0958	1201.7858	20.4056	58.8954	
215	216	3604	3606.2	523.8	6.6	7.568	460.866	454.0832	7.5578	7.08	0.477	0.937	0.9854	0.0624	1201.665	19.7328	60.8976	
216	217	3606.2	3607	75.8	7.4	9.2778	567.0374	556.6814	9.2594	8.706	0.5532	0.9404	0.9816	0.0586	1202.3918	19.674	61.1172	
217	218	2438	2438.2	34.4	1.6	1.3568	83.1206	81.4016	2.003	1.888	0.115	0.9426	0.9792	0.0562	1219.0988	19.8982	61.268	
217	222	1169	1169.4	0	0	0.6274	37.425	37.63	1.9312	1.9312	0	1	1.0056	0	1169.2554	19.5942	59.6736	
219	262	947.6	948.6	529.4	1	1.6974	53.1572	101.8336	6.4268	4.485	1.9418	0.6984	1.9106	0.5772	397.5506	12.693	31.4246	
221	258	4048.6	4049	1878.6	10.4	11.188	546.1228	671.2886	9.9444	7.469	2.4758	0.7518	1.229	0.306	1424.668	29.1868	48.8698	
223	224	471.6	472.6	1.2	0	0.4766	14.3108	28.6008	3.6336	2.424	1.2094	0.667	1.9986	0.6652	359.8142	11.9848	30.0216	
224	237	472.6	472.6	0	0.4	0.338	13.5164	20.2848	2.5756	2.288	0.2878	0.8882	1.501	0.1676	472.626	11.8218	39.976	
227	237	450.2	450.2	0	0	0.4014	16.7972	24.0796	3.2086	2.985	0.2238	0.9304	1.4334	0.1	450.2	10.7564	41.8614	
228	229	1914.6	1913.8	0	3.2	2.9272	120.0106	175.6326	5.5052	5.015	0.4902	0.9112	1.4638	0.1304	1914.3698	46.6938	41.0042	
231	233	3019.2	3012.6	299.2	9.2	7.3824	143.9304	442.9504	8.9172	3.436	5.4808	0.5714	3.1138	1.9138	1005.2292	51.5604	28.571	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	3012.6	3007.2	271.4	8.8	8.03	154.5208	481.7978	9.705	4.106	5.599	0.5608	3.1516	1.818	1003.531	52.1502	25.2342	
234	100	3007.2	3001.8	298.8	9.2	7.563	146.8254	453.7774	9.1502	3.909	5.241	0.528	3.1208	1.7876	1502.3996	77.3882	23.7622	
234	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
235	203	1636	1636.4	0	0.6	0.9462	43.0746	56.7852	2.0822	2.0822	0	1	1.3186	0	818.111	17.9754	45.5166	
237	256	922.8	922.6	687.6	0.6	0.7306	31.4592	43.8296	2.8498	2.727	0.1226	0.957	1.393	0.06	461.4038	10.714	43.0662	
238	239	2009.2	2009	122	7	6.6042	286.953	396.2476	11.8318	11.424	0.4076	0.9656	1.3808	0.0478	1004.7162	23.1232	43.4496	
239	242	2009	2009.4	54.2	3	2.9596	128.219	177.5714	5.3036	5.106	0.1976	0.9628	1.385	0.0518	1004.4452	23.1846	43.3234	
242	244	2009.4	2010	167.2	3.4	3.9562	171.284	237.3834	7.0872	6.818	0.269	0.962	1.386	0.0526	861.3138	19.895	43.2924	
244	245	96.4	96	0	0.6	0.2454	10.9366	14.725	9.1968	9.106	0.0908	0.9902	1.3466	0.0134	96.083	2.1562	44.559	
245	247	96	96.2	0	0	0.0816	3.639	4.8978	3.0594	3.03	0.0294	0.9906	1.3462	0.013	96.0686	2.1552	44.5712	
250	249	1269.2	1270.4	13.6	0.6	0.995	35.5952	59.7084	2.8218	2.242	0.5794	0.7946	1.6776	0.3446	949.2068	26.5372	35.765	
251	252	843.2	843.2	0	1.4	0.9284	39.9246	55.7006	3.9636	3.788	0.1758	0.9554	1.3952	0.0618	843.2122	19.6068	43.0048	
252	249	843.2	842.8	0	2.2	1.736	73.8986	104.1576	7.4158	7.015	0.4008	0.9458	1.4096	0.076	842.731	19.7968	42.5682	
253	254	1.2	1.2	0	0	0.0012	0.0264	0.0644	2.6338	0.9816	1.652	0.3014	1.9808	1.2424	1.2	0.0484	19.5924	
253	651	921.6	921.4	0	0.6	0.6946	29.142	41.6856	2.7148	2.53	0.1842	0.9324	1.4304	0.097	921.3804	21.966	41.9492	
255	104	1614.8	1614	0	2.6	2.2996	137.887	137.982	5.1282	4.731	0.3978	0.9226	1.0006	0.0776	1614.284	26.9232	59.9612	
256	253	922.6	922.8	12.8	0.8	0.6544	26.9066	39.2726	2.5548	2.333	0.221	0.9136	1.4598	0.1264	461.2532	11.2208	41.1082	
257	639	2439.2	2437.8	1.6	2.2	3.1348	177.809	188.0896	4.6278	4.6278	0	1	1.058	0	1219.2626	21.496	56.7226	
258	614	4049	4049.8	81.6	2	3.7212	197.0992	223.2764	3.3084	2.696	0.6126	0.815	1.1328	0.2096	2024.677	38.2266	52.987	
262	627	948.6	948.6	0	1.2	0.9422	39.352	56.5242	3.5658	2.297	1.2688	0.6444	1.4328	0.5098	948.7628	22.7126	41.895	
346	557	7558	7563.2	2412	25.6	27.6398	1593.891	1658.3728	13.1588	11.675	1.4838	0.8874	1.0402	0.1172	1763.5678	30.5816	57.6716	
351	556	7553	7552.8	661	6.6	8.1018	450.597	486.1068	3.8608	3.304	0.5568	0.856	1.0784	0.1554	1888.2154	33.9504	55.6356	
401	411	12193.4	12035.8	6813.6	237	127.174	4449.19	7630.4402	37.8798	20.339	17.5408	0.555	1.7192	0.7962	2019.23	57.717	36.0742	
402	130	5415.8	5371.2	854.4	101.8	61.4624	2966.497	3687.7504	40.7364	35.727	5.0094	0.8878	1.2438	0.153	1811.6008	37.5344	48.828	
411	657	12035.8	11970.4	4816	102.2	75.2932	2093.496	4517.5882	22.6088	9.661	12.948	0.4302	2.16	1.237	2000.3004	71.9414	27.9586	
42	7010	975.4	974.2	0	2.2	1.4114	26.4048	84.6864	5.2088	2.167	3.0422	0.4228	3.2056	1.8722	974.9448	52.1146	19.0242	
51	7004	1168	1165	0	3.4	1.2172	49.2604	73.0358	3.758	3.379	0.3794	0.9006	1.483	0.1496	1166.3414	28.8212	40.527	
522	525	4680.6	4681	1996.4	21.8	21.5268	1299.444	1291.6012	16.5588	15.378	1.181	0.9288	0.994	0.071	1170.0316	19.3828	60.365	
524	526	5230.8	5227.4	2008.6	25.4	22.8662	1337.617	1371.9804	15.747	14.171	1.5754	0.9	1.0256	0.1026	1196.2426	20.4496	58.4972	
525	527	3261.8	3260.8	1083	12.2	12.2284	771.176	733.7178	13.5036	13.101	0.4026	0.97	0.9514	0.0282	1086.6854	17.2316	63.0632	
525	706	1419.2	1421.4	0	6.8	7.9186	330.1282	475.118	20.0662	18.591	1.4752	0.9264	1.439	0.106	1420.6	34.0754	41.6922	
526	523	5227.4	5226.4	439.6	23	20.953	1299.973	1257.1844	14.4292	13.773	0.6566	0.9546	0.9672	0.0442	1306.9034	21.065	62.0422	
527	537	3260.8	3258.4	836.8	12.8	12.9054	808.4946	774.332	14.2574	13.741	0.5162	0.9638	0.9578	0.0348	1086.2216	17.3386	62.6468	
528	111	3320.8	3321.2	215.4	10	9.7428	606.4082	584.5662	10.56	10.112	0.448	0.9578	0.9642	0.0412	1107.1356	17.7874	62.2434	
529	541	3840.6	3840.2	84	6.4	6.591	387.7368	395.4612	6.1774	5.591	0.5864	0.905	1.02	0.0968	1280.3314	21.764	58.8286	
535	529	3839.4	3840.6	85.2	4.6	5.1976	318.5576	311.858	4.8724	4.594	0.2784	0.943	0.9788	0.0558	1280.0494	20.8854	61.2894	
536	615	4390.6	4392	2267.2	2.8	3.7838	202.0904	227.0278	3.1022	2.549	0.5532	0.8218	1.1234	0.2004	1097.7766	20.5538	53.409	
537	535	3841	3839.4	836.4	7.6	7.8268	469.0632	469.6068	7.338	6.766	0.5722	0.922	1.0012	0.078	976.9836	16.3018	59.9304	
538	586	2593.4	2592.6	297.6	3.2	3.613	224.4454	216.7796	5.0156	4.794	0.222	0.9556	0.9658	0.0428	1296.5764	20.8716	62.1236	
541	538	2594.2	2593.4	66.6	4.6	4.1364	257.4112	248.1904	5.7412	5.497	0.2446	0.9574	0.9642	0.0412	1296.8806	20.8406	62.2308	
541	596	1246	1246.8	0	1.4	1.6664	64.4382	99.9796	4.8132	4.653	0.1598	0.9668	1.5516	0.0516	1246.278	32.2276	38.6736	
542	548	8856.6	8853.8	466	20.2	19.6942	929.1062	1181.649	8.0068	5.811	2.1958	0.7262	1.2716	0.3486	2213.7554	46.9248	47.205	
542	554	3030.8	3027.6	40.4	4.6	3.8372	83.1934	230.232	4.6182	1.648	2.9706	0.5488	2.8032	1.8032	1514.6932	69.8636	32.931	
544	536	2480.8	2480.8	180.6	5.8	5.8932	366.9368	353.5832	8.5512	8.192	0.3592	0.9582	0.9636	0.0406	826.8998	13.28	62.2712	
547	566	1915.2	1914.8	0	0.6	1.0558	51.8694	63.3508	1.9844	1.773	0.2116	0.8934	1.221	0.1304	1915.1812	38.985	49.1446	
547	711	5461	5460.4	99	4.2	3.849	229.6022	230.9438	2.5372	2.329	0.2086	0.918	1.0058	0.0828	1820.2694	30.5152	59.6616	
548	580	8853.8	8850.6	199.6	18.8	16.4798	831.565	988.805	6.702	5.203	1.4992	0.7766	1.1892	0.2662	2213.0356	43.8584	50.4732	
549	226	1497.6	1497.4	0	2.6	2.7806	130.492	166.8366	6.6836	6.273	0.411	0.9386	1.2788	0.0788	1497.8202	31.9164	46.9268	
549	595	5376	5375	442.6	8.6	7.7462	469.3392	464.7664	5.1874	4.836	0.3518	0.9322	0.9902	0.0672	1791.8368	29.5728	60.5948	
553	351	7552.4	7553	4516	20	21.5802	1214.663	1294.8092	10.2832	8.906	1.3774	0.8662	1.0658	0.1428	1513.3134	26.886	56.2968	
554	231	3027.6	3019.2	52	11	9.0146	181.5196	540.8784	10.8698	3.93	6.94	0.5638	3.0174	1.9266	1511.7076	75.0748	31.019	
556	346	7552.8	7558	881.6	10.6	13.6962	778.4094	821.7658	6.525	5.706	0.8188	0.8746	1.0558	0.1324	1888.7872	33.2332	56.8486	
557	802	1541.8	1541.6	0	2	1.5108	62.7778	90.6456	3.5278	3.258	0.2702	0.9234	1.4438	0.1106	1541.7092	37.1016	41.554	
557	804	6021.4	6021.4	204	10.8	9.9732	572.4694	598.3956	5.9624	5.266	0.6968	0.8832	1.0454	0.1224	1505.2984	26.2244	57.4044	
558	559	9015.4	9019.8	2918.8	26.6	29.3542	1704.57	1761.264	11.718	10.469	1.2498	0.8934	1.033	0.11	1803.6336	31.0606	58.071	
559	560	7382.8	7378.4	3078.8	34.8	31.8506	1905.291	1911.032	15.5354	14.297	1.2378	0.9206	1.0032	0.08	1845.1832	30.8456	59.821	
559	561	1637	1637	0	3	2.6646	145.4036	159.8746	5.8598	5.33	0.5304	0.9096	1.0994	0.0994	1636.9552	29.9978	54.578	
560	547	7378.4	7376.2	860.2	24.8	22.7	1318.878	1361.9964	11.0778	9.902	1.1758	0.8938	1.0326	0.1096	1844.1942	31.7416	58.1026	
561	211	1637	1635.4	0	5.6	5.6296	286.8978	337.7822	12.3886	11.479	0.9092	0.9266	1.1772	0.0864	1635.8748	32.1002	50.9652	
562	564	6041.2	6041.2	814.4	6.8	6.848	393.579	410.8772	4.0808	3.608	0.4722	0.8842	1.044	0.121	1560.133	27.145	57.4804	

NO BUILD 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
563	600	6641.8	6644	416	8.4	8.4822	485.5412	508.9326	4.5976	4.049	0.5488	0.8806	1.0482	0.1252	1660.4004	29.0066	57.2434	
564	563	5382.4	5386.8	231.2	10	12.0858	727.1304	725.1284	8.0798	7.479	0.6006	0.9254	0.997	0.074	1794.8802	29.8326	60.1698	
564	603	658.8	658.6	0	1.8	2.1836	97.722	131.0186	11.9282	11.8592	0.0692	0.9944	1.3406	0.0078	658.9666	14.7252	44.7576	
566	228	1914.8	1914.6	0	2	2.656	122.5606	159.3552	4.9942	4.609	0.3852	0.923	1.3004	0.1004	1914.5548	41.489	46.1476	
568	536	1911.2	1909.8	0	4	3.026	125.927	181.5634	5.702	5.273	0.4292	0.9248	1.4418	0.1086	1910.617	45.9126	41.6132	
569	114	928	928	0	0.4	0.5598	29.347	33.5856	2.1716	2.07	0.1012	0.9534	1.1442	0.0532	927.8594	17.6978	52.4362	
569	544	2478.4	2480.8	109.2	6.8	7.3064	453.1898	438.3744	10.6062	10.122	0.4838	0.9542	0.967	0.044	1239.814	19.988	62.035	
576	124	577.2	577.2	0	2.2	2.8708	123.6472	172.2492	17.9048	17.136	0.7686	0.957	1.3932	0.0598	577.2378	13.4024	43.0686	
580	549	6873.4	6873.6	2070	26.2	25.2044	1399.323	1512.263	13.201	11.276	1.9248	0.8544	1.0806	0.1576	1983.47	35.7262	55.526	
580	581	1977.2	1976.2	55	1.4	0.8998	42.68	53.9928	1.6388	1.555	0.0842	0.9486	1.265	0.065	988.3746	20.8392	47.4288	
581	582	1976.2	1975.8	107.4	2.8	2.383	106.2956	142.9972	4.3412	4.303	0.0382	0.991	1.3452	0.0118	988.0982	22.1546	44.603	
582	213	1975.8	1975.6	373.8	3.2	3.3582	162.727	201.4914	6.1208	4.563	1.5578	0.7456	1.2382	0.3152	987.5844	20.3808	48.458	
586	587	2592.6	2592	512.4	5.6	4.2824	266.5232	256.9516	5.9488	5.696	0.2528	0.9576	0.9642	0.041	1295.8036	20.821	62.2372	
587	588	2592	2592	323	4.8	4.0516	248.4488	243.0908	5.6258	5.308	0.3182	0.9434	0.9784	0.0554	1296.2548	21.1382	61.326	
588	611	2592	2593.2	155.8	3.8	3.6508	220.4786	219.023	5.0684	4.71	0.3586	0.9292	0.9934	0.0702	1296.3542	21.4632	60.4012	
590	591	5443.2	5444.8	499.8	7.8	10.2328	587.7354	613.9734	6.7658	5.979	0.7868	0.8836	1.0446	0.1216	1361.0712	23.6974	57.441	
591	182	2038.2	2039.4	90.6	2	2.9394	127.0406	176.365	5.1896	4.985	0.2052	0.9606	1.3884	0.0548	1019.414	23.587	43.2236	
591	569	3406.6	3406.4	581.6	7.8	8.9294	532.7178	535.7678	9.4386	8.664	0.7744	0.918	1.0054	0.0822	1135.0884	19.0264	59.6684	
595	553	5375	5376.4	1294	17.6	19.2468	1176.996	1154.804	12.8882	12.126	0.7626	0.941	0.981	0.058	1791.9656	29.3028	61.1548	
599	528	4392	4393.8	545.4	8.8	9.1936	531.639	551.6124	7.534	6.703	0.8312	0.8896	1.0374	0.1144	902.8802	15.6134	57.8286	
600	565	6644	6644.6	310.2	12.8	13.5312	816.68	811.859	7.3316	6.808	0.5236	0.9286	0.994	0.0708	1661.0442	27.5206	60.3572	
601	401	6931.4	6834.2	982	203	122.999	6432.943	7379.9496	63.9676	51.43	12.5376	0.8132	1.1482	0.225	2309.1944	44.1526	52.8658	
610	636	1615	1615.2	0	2	2.4914	148.6964	149.4988	5.5526	5.098	0.4546	0.9182	1.0052	0.0822	1615.4664	27.0696	59.6788	
611	612	2593.2	2593	38.8	2.2	2.828	169.4414	169.6704	3.9256	3.619	0.3068	0.9218	1.0012	0.0782	1296.5964	21.6392	59.9198	
612	610	2593	2593.4	8.8	4.6	4.343	248.997	260.5972	6.0298	5.318	0.7116	0.882	1.0466	0.1234	1296.5532	22.616	57.3306	
614	644	4049.8	4049.4	74.2	5.6	4.7156	259.99	282.9484	4.1922	3.556	0.6362	0.8482	1.0884	0.1652	2024.6992	36.7248	55.1422	
615	599	4392	4392	345.2	4.2	4.0522	233.7504	243.1306	3.3216	2.948	0.3736	0.8876	1.04	0.1168	1098.0448	19.0352	57.6858	
626	627	3686.6	3687	207.8	4.4	5.1558	311.457	309.3424	5.0338	4.678	0.3554	0.9294	0.9932	0.0702	1843.603	30.518	60.4112	
627	106	4635.6	4633.6	416.2	7.6	5.8254	336.1724	349.5198	4.5244	4.017	0.507	0.888	1.0398	0.1166	1544.8132	26.7692	57.7206	
628	626	3684.4	3686.6	100.4	3.6	4.3062	260.3424	258.3916	4.2068	3.913	0.2942	0.93	0.9924	0.0694	1842.637	30.4804	60.4536	
636	255	1615.2	1614.8	0	2	1.754	105.1994	105.24	3.9106	3.608	0.3022	0.9228	1.0004	0.0774	1614.6884	26.9222	59.9794	
637	629	3684	3684.4	93	6.2	6.646	404.7052	398.7654	6.4942	6.084	0.4102	0.9368	0.9854	0.0622	1842.1068	30.2512	60.8944	
638	738	1129	1130.4	0	1	1.7032	71.4752	102.192	5.4266	5.061	0.3662	0.9324	1.4298	0.0962	1129.9076	26.9248	41.9648	
639	221	2437.8	2435.2	145	5.4	5.3294	233.0202	319.7596	7.8746	7.652	0.223	0.9716	1.3722	0.039	1218.1642	27.8602	43.7268	
644	645	4049.4	4047.4	104.6	10.6	9.363	538.9172	561.787	8.3274	7.374	0.9534	0.8856	1.0424	0.1192	2023.8134	35.1618	57.5612	
645	649	4968.6	4970.8	1191.8	38.6	38.2864	2291.336	2297.199	27.7408	25.542	2.1988	0.921	1.0026	0.0794	1656.1606	27.6734	59.8482	
647	638	4817.6	4812.4	197.6	13.4	10.0688	588.2676	604.113	7.527	6.766	0.7612	0.8988	1.0268	0.1038	1605.195	27.4738	58.4264	
648	647	4820	4817.6	2694.8	29.4	28.54	1772.634	1712.3912	21.1096	20.171	0.9382	0.9558	0.9662	0.043	1622.3792	26.1208	62.1108	
651	645	921.4	921.2	0	1.8	1.5054	63.1588	90.3204	5.8828	5.485	0.3982	0.9324	1.43	0.0966	921.2104	21.9564	41.9582	
657	542	11970.4	11887.4	7912.2	194.8	170.56	5047.732	10233.559	51.666	23.455	28.2114	0.4658	2.0334	1.1102	1986.5852	67.1254	30.2744	
661	553	2176.2	2176	384.6	10.6	9.7042	456.0398	582.2546	16.046	15.082	0.9644	0.94	1.2766	0.0766	1088.5572	23.1638	46.9956	
701	236	980.2	972.4	0	8.8	6.2438	45.1038	374.6428	23.0942	3.697	19.3972	0.1802	8.3292	6.9956	976.017	135.1172	8.1034	
701	238	2011	2009.2	81	4.6	3.9896	173.9848	239.3664	7.1454	6.924	0.2212	0.9692	1.3758	0.0426	1005.0768	23.0462	43.6074	
7013	63	843	843.6	0	0.4	0.824	34.749	49.4406	3.2178	3.015	0.2026	0.937	1.4228	0.0896	921.9778	21.8632	42.1692	
711	562	6037.8	6041.2	926.8	13	13.8536	776.5444	831.2112	8.2586	7.122	1.1362	0.8626	1.0706	0.1476	1554.8562	27.7384	56.061	
804	801	3440.6	3442.4	132.2	5	5.1602	316.7944	309.6206	5.3976	5.098	0.2998	0.9446	0.9772	0.0542	1147.2382	18.6878	61.3908	
804	803	2580.8	2580.4	131	3.4	4.1062	176.93	246.371	5.7278	5.485	0.243	0.9574	1.3926	0.0592	1290.318	29.9456	43.0912	
136	7002	1957.6	1957.8	0	1.4	1.1448	49.313	68.6896	2.1052	2.015	0.09	0.957	1.393	0.0596	978.8426	22.7244	43.0746	
236	7007	972.4	964	0	9.8	8.3198	50.443	499.1852	30.9794	4.167	26.8124	0.1412	9.9132	8.5802	968.507	159.7394	6.3548	
247	7012	96.2	96.6	0	0	0.069	3.0702	4.1382	2.5734	2.545	0.0282	0.989	1.348	0.0146	96.4966	2.1678	44.51	
528	7005	1073	1074.4	0	1.2	1.7724	70.1438	106.3464	5.9438	5.881	0.0634	0.9892	1.5162	0.0162	536.7518	13.563	39.5744	
603	7009	658.6	657.8	0	1.8	1.8872	82.2538	113.244	10.3246	10	0.3246	0.9682	1.3766	0.0434	658.0286	15.0992	43.585	
7001	223	471	471.6	467.6	0	0.5112	12.379	30.669	3.3764	1.818	1.5582	0.5434	2.476	1.1426	272.3388	11.2454	24.4544	
7006	250	1268.8	1269.2	641.2	1.2	1.5932	47.469	95.5916	4.0968	2.712	1.3848	0.662	2.0144	0.6808	700.1016	23.4974	29.7914	
7011	131	803.8	804.2	0	0	0.8168	27.171	48.995	3.2758	2.424	0.8516	0.7402	1.8018	0.4684	896.645	26.9474	33.3044	
7015	227	450.2	450.2	0	0	0.3258	11.1546	19.546	2.2296	1.697	0.5326	0.761	1.7516	0.4186	525.87	15.3574	34.2536	
7016	219	947.4	947.6	637.8	0.4	0.9798	30.0444	58.7784	3.3124	2.258	1.0546	0.6818	1.9562	0.6228	354.8876	11.5716	30.6744	
738	7018	1130.4	1129.8	0	1.6	1.0256	42.8184	61.5214	3.2656	3.03	0.2352	0.928	1.4368	0.1034	1130.4018	27.0694	41.7592	
802	7026	1541.6	1541.4	0	2.4	2.0512	82.941	123.0798	4.7892	4.303	0.4862	0.8986	1.484	0.1508	1541.997	38.1374	40.433	
803	7025	2580.4	2579.2	0	3.4	2.6264	111.8732	157.599	3.6654	3.47	0.1962	0.9466	1.4086	0.0754	1289.7172	30.281	42.5946	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
48	1	842.2	842.6	0	0.8	1.318	55.2092	79.0842	5.6316	5.242	0.3894	0.9312	1.4324	0.099	842.4952	20.114	41.8904	
8	20	8551.8	8553.6	1067.4	13.8	15.575	978.3918	934.4872	6.5556	6.336	0.22	0.9666	0.9552	0.032	1710.5654	27.23	62.8188	
137	8	8550.6	8551.8	1207.2	12	12.8732	802.6984	772.3776	5.2048	4.993	0.2118	0.9594	0.9622	0.0392	1780.7764	28.5584	62.3552	
1	563	842.6	842.6	0	0.8	0.5056	21.063	30.3254	2.1596	2	0.1596	0.9262	1.4396	0.106	842.5246	20.2166	41.6798	
18	32	1100.6	1101.8	479.2	0.6	1.8418	79.2538	110.5116	6.0204	5.758	0.263	0.9562	1.3942	0.0608	550.605	12.7962	43.0348	
18	37	528.4	528.2	0	0.6	0.4962	20.9144	29.7724	3.3806	3.167	0.2144	0.9368	1.4236	0.0902	528.3628	12.5358	42.1506	
21	39	1823	1825.4	72.6	4	4.634	202.042	278.0484	9.1482	8.864	0.2848	0.9688	1.3762	0.0428	911.7798	20.9128	43.6006	
32	36	1101.8	1104	44.8	0.8	1.7328	71.2048	103.9676	5.6546	5.167	0.488	0.914	1.4592	0.126	551.2632	13.4152	41.1318	
36	40	834.6	837.8	0	0.4	1.8156	76.6756	108.9434	7.813	7.333	0.4796	0.9386	1.4206	0.0872	836.4618	19.808	42.2392	
40	46	837.8	841	0	2.6	3.0076	127.6898	180.4686	12.8958	12.167	0.7292	0.9432	1.4134	0.08	839.6032	19.7774	42.4562	
4	576	821.6	822	60.4	1.2	1.663	69.1046	99.7688	7.284	6.727	0.5568	0.9234	1.4436	0.1104	490.4192	11.8006	41.562	
46	48	841	842.2	0	1.8	2.0388	85.7384	122.3176	8.7214	8.152	0.5696	0.9346	1.4266	0.0932	841.4496	20.0074	42.0616	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1673.4	1673.6	40.4	2	1.9958	86.8414	119.7412	4.2932	4.152	0.142	0.967	1.379	0.0454	836.7204	19.2286	43.5146	
63	18	1628.4	1629	127.4	2.2	2.747	112.2454	164.8102	6.0728	5.515	0.5578	0.9084	1.468	0.1348	814.0874	19.922	40.8748	
68	56	1673	1673.4	12.4	1.2	1.4478	63.0774	86.8736	3.1144	3.015	0.0992	0.9684	1.3774	0.044	836.807	19.2084	43.5658	
71	63	1629	1628.4	501.4	1.8	2.1322	89.773	127.9296	4.7122	4.409	0.3032	0.9358	1.425	0.0918	814.435	19.3434	42.107	
84	86	1673.6	1673.6	64.4	2.6	3.4404	149.6168	206.4092	7.3994	7.152	0.2478	0.9664	1.3794	0.0462	836.8404	19.2416	43.493	
104	71	965	964.6	9	0.6	1.159	43.12	69.5414	4.3234	3.576	0.7478	0.8274	1.612	0.2788	796.0618	21.3976	37.2306	
127	49	152.6	153	0	0.2	0.3464	15.4298	20.7956	8.1646	8.076	0.0888	0.9894	1.3482	0.0146	152.8496	3.4334	44.5134	
127	68	1672.6	1673	28	1.2	1.5336	66.8508	92.0258	3.3006	3.197	0.1036	0.9686	1.3766	0.0432	836.4236	19.1902	43.5864	
19	101	1932.4	1933.4	198.8	3.4	3.6446	157.4176	218.6806	6.788	6.515	0.273	0.9598	1.389	0.0558	966.471	22.3766	43.1912	
20	132	8553.6	8549.8	2403.4	26.2	24.9072	1524.266	1494.4386	10.484	9.871	0.6134	0.9416	0.9804	0.0574	1710.5468	27.9512	61.198	
205	19	1931.6	1932.4	337	4.6	3.3536	146.0296	201.2124	6.2474	6.045	0.202	0.9676	1.3778	0.0446	966.2112	22.1888	43.545	
22	639	1951.8	1952.2	28.6	2	2.8554	140.506	171.3182	5.2652	5.2652	0	1	1.2194	0	976.148	19.837	49.2108	
237	21	1826	1823	51.8	4.8	3.1506	137.8878	189.038	6.216	6.045	0.1702	0.9726	1.3708	0.0374	912.3392	20.8462	43.767	
309	71	665.4	664.4	0	2.2	1.7784	75.2702	106.7068	9.6338	9.061	0.5732	0.9406	1.4176	0.0842	664.5942	15.7026	42.3224	
36	705	269.4	270	0	0.2	0.2628	11.595	15.7686	3.5078	3.439	0.0686	0.9804	1.3598	0.0266	269.698	6.113	44.1224	
37	537	528.2	527.6	0	0.8	0.6128	26.8954	36.768	4.1786	4.076	0.103	0.9754	1.3672	0.0338	527.9126	12.0282	43.8938	
39	127	1825.4	1825.2	206.4	4	3.5608	155.119	213.6526	7.0274	6.803	0.2244	0.968	1.3774	0.044	745.927	17.1234	43.563	
50	625	1932.6	1931.8	117.8	4.2	3.793	164.3426	227.5748	7.0654	6.803	0.2622	0.9628	1.3848	0.0516	966.29	22.3014	43.3288	
50	628	1723.4	1722	58.2	3.2	2.6522	163.4686	159.1316	5.5422	5.255	0.287	0.9482	0.9734	0.0504	861.391	13.9756	61.6356	
51	650	1951.4	1952	36	2.6	2.3376	145.995	140.2564	4.3122	4.143	0.1688	0.9608	0.9606	0.0374	975.7646	15.6236	62.4564	
539	82	3228.6	3227.2	285.2	7.6	7.4382	316.676	446.2956	8.2956	7.848	0.447	0.9462	1.4094	0.076	1075.9648	25.273	42.5746	
545	51	1951.6	1951.4	93.6	4	3.9052	241.7316	234.313	7.2034	6.86	0.3434	0.9524	0.9692	0.0462	975.7978	15.7644	61.9034	
545	59	688.8	689	0	0.6	0.682	39.547	40.9222	3.5624	3.5624	0	1	1.0346	0	689.1336	11.885	57.9938	
565	80	9752.8	9743.4	3137	75.4	71.3828	4276.07	4282.9752	26.3494	24.283	2.066	0.9216	1.0016	0.0786	1429.8702	23.8698	59.9036	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	689	688.8	0	0.4	0.6304	31.4438	37.82	3.2934	3.2934	0	1	1.2024	0	688.8896	13.8098	49.8958	
594	76	1942	1944.6	115.4	4.8	6.3646	276.0476	381.8796	11.7904	11.364	0.4264	0.9638	1.3832	0.05	971.6874	22.4038	43.3716	
598	81	3227	3228.4	62	2.2	2.5394	109.435	152.3728	2.832	2.712	0.12	0.9576	1.3922	0.059	1076.0106	24.9698	43.0928	
629	50	3655.8	3656	128	5.6	6.8076	387.059	408.4494	6.7034	5.864	0.8396	0.8748	1.0554	0.132	1218.6468	21.4334	56.8582	
638	97	3655.4	3657.6	417.8	5.6	6.7682	414.8396	406.096	6.6632	6.283	0.3802	0.943	0.979	0.056	1218.8944	19.8866	61.2924	
650	22	1952	1951.8	0.6	2.4	1.5474	92.7994	92.8366	2.8534	2.8534	0	1	1.0004	0	976.057	16.2742	59.9776	
7008	4	822.2	821.6	226.8	1.6	0.9286	31.0394	55.7246	3.6924	2.742	0.9502	0.7428	1.795	0.462	452.7264	13.5464	33.422	
76	539	1944.6	1944.6	34.8	2.6	2.3838	103.1204	143.0386	4.4134	4.242	0.1712	0.9612	1.3868	0.0538	972.2794	22.4776	43.2556	
79	522	4601.6	4600.6	2147.8	17.6	17.4442	1107.326	1046.6344	13.4474	13.133	0.3146	0.9768	0.9452	0.0222	1167.468	18.3916	63.4794	
80	602	9743.4	9736.6	1919.8	86	84.1254	5162.65	5047.5274	31.0864	29.35	1.7366	0.944	0.9776	0.0544	1623.707	26.4584	61.3684	
81	565	3228.4	3226	139	6.4	5.6846	245.117	341.0612	6.3404	6.076	0.2644	0.9582	1.3914	0.058	1075.8258	24.949	43.1224	
82	202	3227.2	3228.6	86.8	2.2	3.4386	148.5458	206.3194	3.8354	3.682	0.1536	0.9602	1.3888	0.0556	1075.886	24.9054	43.199	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1673.6	1675	109.8	4.4	5.4024	234.7118	324.1382	11.6126	11.212	0.4006	0.9652	1.381	0.0476	837.3498	19.273	43.448	
97	637	3657.6	3656.8	268.6	5	4.6222	284.068	277.3272	4.5486	4.301	0.2478	0.9456	0.9764	0.0532	1219.4134	19.8412	61.4578	
100	658	1857.4	1856	0	3.6	2.762	95.9858	165.7232	5.3556	4.653	0.702	0.8688	1.7262	0.2262	1856.429	53.4202	34.7576	
101	691	1933.4	1933.4	229.8	5	4.0186	170.6292	241.1192	7.4832	7.061	0.4224	0.9436	1.4132	0.0796	966.6546	22.7668	42.4608	
106	107	1224.8	1225	154.6	0.8	1.7802	61.2474	106.8258	5.2312	4	1.2312	0.765	1.7438	0.4104	728.3468	21.1728	34.42	
107	590	2947.4	2947.4	382.4	4.2	3.4464	185.298	206.7678	4.2098	3.483	0.727	0.8272	1.116	0.1928	982.303	18.2688	53.7722	
109	594	2943	2943	55.2	4.6	4.882	209.0586	292.9328	5.9712	5.682	0.2892	0.9516	1.4012	0.068	981.1808	22.9138	42.8204	
111	524	3643.2	3646	277	11.4	12.9788	807.3748	778.7242	12.8234	12.273	0.5504	0.957	0.9644	0.0414	1214.5124	19.5236	62.209	
114	115	998.2	998.2	0	2.4	2.1468	80.3516	128.8074	7.7412	7.244	0.4968	0.9358	1.603	0.103	998.25	26.6706	37.4342	
115	574	998.2	997.6	0	1	0.9336	35.5196	56.012	3.3688	3.205	0.1642	0.9512	1.5768	0.0768	997.5678	26.2186	38.0508	
123	705	1235.6	1235.8	0	3.4	3.7404	154.7418	224.4244	10.894	10.015	0.8788	0.9194	1.4502	0.117	1236.061	29.878	41.3702	
124	711	822.8	824	0	0.2	0.9884	41.6438	59.3144	4.3216	4.045	0.2758	0.9362	1.4242	0.091	823.5196	19.5492	42.1264	
130	401	5148	5122.2	272	37.8	16.0302	550.5318	961.8276	11.2578	6.432	4.8258	0.6222	1.7504	0.7504	1711.9004	49.8474	37.3306	
131	309	665.8	665.4	0	0.8	0.8682	37.0752	52.0908	4.6942	4.455	0.2398	0.9488	1.405	0.072	665.8378	15.592	42.7026	
132	558	8549.8	8547.8	3079.2	30.8	28.875	1751.754	1732.5094	12.1604	11.35	0.811	0.9334	0.9888	0.0658	1709.66	28.1816	60.6666	
133	708	1507.6	1510.2	161	1.2	2.2328	96.009	133.9724	5.3282	5.091	0.2372	0.9554	1.3952	0.0622	754.3558	17.5442	42.9972	
136	146	1510.6	1510.8	7.2	2	2.2784	94.9838	136.7092	5.43	5.03	0.3998	0.9264	1.4392	0.106	755.2938	18.1182	41.6882	
146	158	2508	2508.2	0.4	1	1.871	76.4746	112.2512	2.6856	2.439	0.246	0.9082	1.4678	0.1348	835.9944	20.4516	40.8772	
158	178	2508.2	2508	0	2.2	2.0526	86.4544	123.1684	2.9464	2.758	0.1888	0.936	1.4248	0.0914	836.041	19.8512	42.1154	
178	622	229.6	229.2	0	0.8	0.6332	27.8416	37.9786	9.9362	9.712	0.2242	0.9774	1.3642	0.0306	229.3364	5.214	43.987	
178	661	2278.4	2276.2	196.6	4.6	3.3286	141.4496	199.7088	5.2626	4.97	0.2926	0.9446	1.412	0.0786	1138.4952	26.7902	42.4962	
189	205	1931.8	1931.6	174.8	2.2	2.1244	92.5732	127.4584	3.9584	3.833	0.125	0.9686	1.377	0.0432	643.9874	14.7776	43.578	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
198	691	1009	1009	0	1.4	0.9062	38.9836	54.3516	3.232	3.091	0.141	0.9564	1.3942	0.0608	1008.983	23.4458	43.0346	
199	663	1528	1528.8	298.2	1.2	1.8686	83.6484	112.1178	4.4018	3.031	1.3704	0.6886	1.3404	0.4172	764.1242	17.0698	44.7642	
200	201	1283.2	1283.6	0	1.4	1.3342	49.82	80.06	3.7434	3.494	0.249	0.9336	1.607	0.107	1283.1664	34.3672	37.3394	
201	539	1283.6	1284	0	2	1.7934	66.6254	107.6038	5.0284	4.67	0.3578	0.9288	1.6148	0.1148	1283.875	34.559	37.1536	
202	598	3228.6	3227	80.6	3.4	2.8356	122.267	170.1382	3.1626	3.03	0.1324	0.9584	1.3916	0.0582	1075.95	24.9534	43.1186	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	1112.6	1111.4	0	1.4	0.9064	40.0166	54.39	2.934	2.879	0.0552	0.9814	1.3588	0.0254	1112.0418	25.1912	44.1572	
208	131	666	665.8	0	0.4	0.5784	24.9726	34.7	3.1268	3	0.1268	0.9596	1.3896	0.0564	665.9368	15.4222	43.178	
209	583	1111.4	1112.8	0	1.6	2.961	120.7032	177.6588	9.5816	8.682	0.8996	0.9062	1.4716	0.1384	1112.2376	27.2844	40.7764	
211	212	408.6	408.4	0	0.6	0.3352	14.463	20.112	2.9554	2.833	0.1218	0.9586	1.3908	0.0572	408.3628	9.4644	43.1432	
212	214	408.4	408.2	0	0.4	0.2844	12.6036	17.064	2.508	2.47	0.0384	0.9848	1.354	0.0208	408.2652	9.2124	44.3138	
213	214	321.4	321.2	0	0.4	0.3408	14.4136	20.4526	3.8222	3.591	0.2314	0.9396	1.419	0.0858	321.1082	7.5942	42.2804	
214	217	729.4	730	316.4	0.2	0.3876	17.002	23.2584	1.912	1.864	0.0484	0.9746	1.368	0.0348	364.9198	8.3202	43.8614	
215	216	2.2	2.2	0	0	0.0022	0.0528	0.1158	3.1524	1.322	1.8304	0.4198	2.2014	1.2784	2.2	0.081	27.2832	
215	651	727.6	727.8	0	0.6	0.813	34.5866	48.7852	4.023	3.803	0.22	0.9452	1.4104	0.077	727.5552	17.104	42.5406	
217	215	730	729.8	3.6	0.6	0.3778	16.0372	22.6708	1.8634	1.758	0.1058	0.9434	1.4134	0.0804	364.978	8.5994	42.4514	
221	614	3630.6	3629.8	190.8	8.8	7.4706	455.1636	448.2448	7.4084	6.944	0.4642	0.9374	0.9848	0.0618	1210.1022	19.8618	60.927	
226	622	1628.2	1628	0	1.8	2.6776	122.425	160.6628	5.9204	5.9204	0	1	1.3124	0	1628.219	35.613	45.7228	
228	701	2685.2	2681.6	1100.8	9	6.7144	280.5482	402.8772	9.0076	8.364	0.6442	0.9282	1.436	0.1026	1135.962	27.1878	41.783	
231	233	2684.4	2684	188.6	2.4	2.3502	128.6212	141.0136	3.1518	3.136	0.0156	0.9952	1.0962	0.0054	894.756	16.3496	54.7298	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2684	2685.6	79	1.8	1.9708	97.6196	118.2564	2.6432	2.618	0.0248	0.9906	1.2112	0.0112	894.8468	18.0672	49.5344	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2685.6	2685.2	107	2.4	2.242	97.6534	134.5146	3.0052	2.909	0.096	0.9682	1.3772	0.0442	1342.7312	30.8262	43.5654	
235	207	1113	1112.6	0	0.8	0.5798	29.2988	34.7894	1.875	1.875	0	1	1.1872	0	556.4702	11.0126	50.542	
238	109	2941.4	2943	148.4	7	6.4494	279.1434	386.974	7.8924	7.591	0.3014	0.9616	1.3862	0.053	980.6234	22.6572	43.281	
346	557	7741.8	7742.2	4188.4	32.2	30.3032	1631.857	1818.2016	14.092	11.675	2.417	0.8284	1.1142	0.191	1805.576	33.529	53.8548	
351	556	7751.4	7743.4	2198.8	19.6	15.4156	925.8092	924.9406	7.1638	6.619	0.5448	0.9242	0.999	0.076	1936.7166	32.2484	60.0568	
401	411	11623.2	11424.2	4843	264.4	162.097	4229.279	9725.8112	50.699	20.339	30.36	0.4042	2.301	1.3778	1919.4254	73.5664	26.2744	
402	130	5175.4	5148	772	81.8	57.2612	2840.798	3435.6706	39.608	35.727	3.8808	0.9066	1.2096	0.1186	1734.8382	34.9688	49.8594	
411	657	11424.2	11357.8	4055.8	104.4	87.5568	1986.878	5253.3936	27.676	9.661	18.015	0.3496	2.6446	1.7214	1898.4282	83.6588	22.707	
49	7012	153	153.2	0	0.4	0.1876	8.3476	11.247	4.4102	4.364	0.0468	0.9896	1.3476	0.0142	153.0386	3.4366	44.5258	
522	525	4600.6	4603.6	1050.4	22	23.1604	1403.406	1389.6288	18.116	16.888	1.228	0.9322	0.9904	0.0674	1150.6182	18.9886	60.595	
524	526	5321	5323.8	1743.8	18.8	23.0508	1361.984	1383.0498	15.5896	14.171	1.4186	0.909	1.0156	0.0922	1218.0342	20.6146	59.087	
525	527	3365.2	3370	232	7.8	11.2386	704.6356	674.316	12.0166	11.591	0.4258	0.9646	0.957	0.0338	1122.3154	17.9006	62.698	
525	706	1238.4	1238.6	0	5.6	6.054	254.7176	363.2338	17.5984	16.455	1.144	0.9346	1.426	0.0926	1238.406	29.4334	42.0754	
526	523	5323.8	5326.4	428	20.2	21.3576	1324.304	1281.4496	14.4376	13.773	0.665	0.9538	0.9674	0.0444	1331.3644	21.4714	62.0068	
527	537	3370	3369.6	1664.8	14.4	13.414	839.9146	804.8226	14.3298	13.804	0.5254	0.9632	0.9582	0.035	1123.2898	17.9394	62.6164	
528	111	3640.2	3643.2	227.8	10.8	10.6754	664.8408	640.5348	10.554	10.112	0.442	0.958	0.9632	0.0402	1213.8176	19.4906	62.2778	
529	541	3895.6	3897.4	547.4	6.8	8.9468	512.2268	536.7946	8.2646	7.28	0.9846	0.881	1.0482	0.1252	974.2642	17.0168	57.2568	
535	529	3896	3895.6	189	4	4.5422	279.6284	272.5448	4.1976	3.976	0.222	0.947	0.9746	0.0514	973.9042	15.8202	61.5606	
536	615	4799.2	4798	1904.6	5	3.8456	205.4102	230.7218	2.8844	2.371	0.514	0.8216	1.1232	0.2002	1199.742	22.4596	53.4192	
537	535	3897.2	3896	643.6	7.4	6.8854	414.8106	413.1152	6.36	5.895	0.465	0.9268	0.996	0.0728	974.2886	16.1716	60.248	
538	586	2614.8	2616.8	283.2	2.4	3.5918	226.409	215.5114	4.9432	4.794	0.1492	0.9698	0.952	0.0286	871.9478	13.8328	63.0364	
541	538	2614.2	2614.8	689.2	5	3.9228	247.6168	235.3552	5.4002	5.245	0.1554	0.9714	0.9504	0.0274	871.6106	13.8076	63.128	
541	596	1283.2	1282.4	0	1.8	1.4312	52.4606	85.8706	4.0172	3.682	0.3352	0.9164	1.6366	0.1366	1282.373	34.9842	36.6612	
542	548	8626	8628.2	578	20.2	21.0834	905.2626	1265.0148	8.7976	5.811	2.9866	0.6604	1.3974	0.4744	2156.9434	50.2352	42.9432	
542	554	2685.4	2685	51.6	1.2	1.3162	73.739	78.9812	1.7648	1.648	0.1168	0.9336	1.0712	0.0712	1342.5606	23.9668	56.0212	
544	536	2942.6	2940.2	399.4	8	6.6	413.8422	395.9942	8.079	7.794	0.2854	0.965	0.957	0.034	980.2986	15.6336	62.7044	
547	566	1857.8	1857.4	0	2.8	2.6968	130.8518	161.8086	5.2272	4.612	0.6158	0.8824	1.2366	0.1458	1857.254	38.2772	48.5298	
547	711	5570.6	5570.8	164.4	6.2	6.1392	360.8232	368.3498	3.9676	3.587	0.3796	0.9044	1.021	0.0978	1856.8674	31.5934	58.7876	
548	580	8628.2	8629.6	152.4	13	13.926	656.9656	835.5594	5.8104	4.217	1.5934	0.7258	1.2718	0.3488	2157.2006	45.7274	47.1826	
549	226	1628.6	1628.2	0	2.4	2.8132	145.2582	168.7942	6.2194	5.839	0.3804	0.939	1.162	0.071	1628.3728	31.5366	51.6362	
549	595	5478.2	5475.8	176	9.4	8.0276	478.2378	481.6594	5.2762	4.836	0.4404	0.9168	1.0074	0.0842	1825.8096	30.6478	59.5762	
553	351	7752.4	7751.4	2644	31.4	30.177	1764.646	1810.6346	14.015	12.608	1.4066	0.8998	1.026	0.103	1577.0696	26.9692	58.477	
554	231	2685	2684.4	68	2.2	2.4822	140.3298	148.9212	3.3282	3.136	0.192	0.9422	1.0612	0.0612	1342.2842	23.7412	56.5412	
556	346	7743.4	7741.8	1606.8	14.2	13.5186	797.7118	811.1086	6.2856	5.706	0.5792	0.9078	1.0168	0.0938	1935.6242	32.802	59.0096	
557	802	1654	1654.4	0	1.4	1.5008	62.3414	90.0432	3.2656	3.015	0.2506	0.9232	1.444	0.1108	1654.0814	39.8182	41.5496	
557	804	6088.2	6088	464.6	9.4	10.4722	578.8902	628.3476	6.1914	5.266	0.9254	0.8508	1.0854	0.1624	1522.182	27.5372	55.2938	
558	559	8547.8	8546.4	1345.6	26.6	26.9378	1615.59	1616.2778	11.3458	10.469	0.8772	0.9224	1.0004	0.0774	1709.4822	28.5036	59.975	
559	560	7431.6	7426.2	984.6	38.2	32.0492	1917.823	1922.959	15.5302	14.297	1.233	0.9208	1.0026	0.0796	1857.3192	31.0384	59.8408	
559	561	1114.8	1114.6	0	1.4	1.7466	99.0336	104.8084	5.6402	5.33	0.3106	0.945	1.0582	0.0582	1114.9202	19.6656	56.6964	
560	547	7426.2	7428.4	510.4	16.4	18.1792	1070.573	1090.76	8.8106	7.983	0.8284	0.906	1.0188	0.0956	1856.9722	31.5334	58.891	
561	577	1114.6	1113.6	0	4.6	3.467	195.4336	208.0272	11.1994	10.523	0.677	0.9396	1.0642	0.0642	1114.351	19.7692	56.3752	
562	564	6397.4	6397.2	921.4	8.2	7.633	416.762	457.979	4.2958	3.608	0.6874	0.84	1.0992	0.1762	1652.0294	30.257	54.5998	
563	600	6531.8	6530.2	394.8	8.8	8.221	477.4708	493.2642	4.5314	4.049	0.4826	0.8936	1.033	0.11	1632.8008	28.1134	58.0788	
564	563	5690	5689.2	251	13.8	13.0334	768.3922	781.9986	8.2458	7.479	0.7668	0.9068	1.0178	0.0948	1896.7326	32.172	58.9564	
564	603	707.2	708	0	2	2.3626	104.9322	141.7458	12.022	11.864	0.158	0.987	1.351	0.0178	707.5888	15.9306	44.4088	
566	570	1857.4	1857	0	1.4	1.7786	82.66	106.726	3.4478	3.205	0.2436	0.9294	1.2912	0.0912	1857.2124	39.9654	46.4718	
568	536	1857.4	1859	0	2.6	2.9736	122.4522	178.4094	5.762	5.273	0.489	0.9152	1.4572	0.1236	1857.898	45.1148	41.1808	
569	544	2944.2	2942.6	669	8.4	7.621	480.4866	457.2648	9.3222	9.042	0.2802	0.97	0.9518	0.0286	981.0404	15.5606	63.0472	
570	100	1857	1857.4	0	1.2	2.0724	87.2474	124.333	4.0164	3.758	0.2588	0.9358	1.4252	0.0918	1857.5256	44.1182	42.1002	
574	146	997.6	997.2	0	0.8	1.0388	39.4814	62.3362	3.7496	3.5622	0.1872	0.95	1.5786	0.0786	997.417	26.2468	38.0032	
576	124	822	822.8	0	2.6	4.1318	176.2124	247.9112	18.0812	17.136	0.9448	0.9478	1.4068	0.0734	822.636	19.289	42.6488	
577	235	1113.6	1113	0	1	0.6216	34.3708	37.2906	2.0096	2.0096	0	1	1.0846	0	556.681	10.0662	55.3122	
580	549	7100.8	7106.8	2204	24.4	29.2842	1572.563	1757.043	14.8426	12.262	2.5804	0.826	1.1174	0.1942	2072.1568	38.5874	53.7082	
580	581	1528.8	1529	92.8	0.8	1.433	74.4246	85.9764	3.3738	3.186	0.1878	0.9442	1.1552	0.0644	764.5178	14.7196	51.9394	
581	582	1529	1528.2	47.2	2.4	1.7412	87.6964	104.471	4.1018	4.1018	0	1	1.1914	0	764.0884	15.1706	50.3662	
582	199	1528.2	1528	6.2	0.6	1.1558	53.5422	69.3578	2.7234	2.7234	0	1	1.2954	0	764.06	16.4956	46.3188	
583	584	1112.8	1113	0	1.8	2.0248	94.4128	121.4794	6.549	4.699	1.8498	0.7178	1.2866	0.3634	1112.719	23.8622	46.6414	
584	585	2642.6	2641.6	1332.2	3	2.9624	173.6162	177.7378	4.0368	3.64	0.397	0.9018	1.0236	0.1006	880.59	15.025	58.6096	
585	620	2641.6	2641	234.2	3.8	3.6746	222.619	220.4646	5.0078	4.668	0.34	0.932	0.9904	0.0672	880.4708	14.5324	60.5894	
586	587	2616.8	2619.8	221.4	4	4.2924	269.2154	257.5384	5.9028	5.696	0.207	0.965	0.9564	0.0334	872.5944	13.9124	62.723	
587	588	2619.8	2618.8	83.6	4.2	4.0148	250.9896	240.8926	5.5186	5.308	0.2108	0.9618	0.9598	0.0368	873.008	13.9648	62.5174	
588	611	2618.8	2619.2	42.4	5.2	3.6978	222.7082	221.8592	5.0826	4.71	0.3728	0.9266	0.996	0.0728	872.9766	14.4942	60.2328	
590	591	2947.4	2946	188	5.4	4.2404	253.9452	254.414	5.1798	4.773	0.407	0.9214	1.0018	0.0788	982.2948	16.4018	59.8908	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
591	592	2946	2944.4	139	6.4	4.8606	304.0862	291.626	5.9394	5.717	0.2224	0.9624	0.959	0.036	982.0034	15.696	62.5644	
592	569	2944.4	2944.2	89	5	3.7828	238.6728	226.9708	4.625	4.49	0.1358	0.9706	0.9508	0.0278	981.4588	15.5556	63.0936	
594	114	1001	998.2	461	3.8	2.4258	89.7824	145.5306	8.7296	8.08	0.6502	0.926	1.6208	0.1208	502.1732	13.5664	37.0402	
595	553	5475.8	5477.2	152.2	8.4	8.2708	499.9086	496.2528	5.437	5.056	0.381	0.9298	0.9928	0.0696	1825.392	30.2008	60.4432	
596	200	1282.4	1283.2	0	1.4	1.6504	61.2238	99.023	4.6312	4.295	0.336	0.9276	1.6174	0.1174	1282.7864	34.5794	37.0992	
599	528	4796.4	4800.4	689.4	9.2	10.108	580.78	606.4886	7.5826	6.703	0.88	0.8842	1.0444	0.121	986.3358	17.1666	57.4584	
600	565	6530.2	6526.8	315.6	16.2	13.2532	802.3132	795.2058	7.3098	6.808	0.502	0.9312	0.991	0.068	1631.8234	26.956	60.5358	
601	401	6629.4	6501	1103.4	233	129.814	6137.772	7788.8502	70.7308	51.43	19.3008	0.7318	1.2696	0.3464	2203.2386	46.5986	47.5628	
610	636	1675.6	1675.2	59.4	2.6	2.9138	183.0496	174.8268	6.2622	6.052	0.21	0.9666	0.9552	0.0318	837.5226	13.3318	62.8234	
611	156	942.2	941.6	0	1	1.327	58.4876	79.6142	5.0736	4.97	0.1038	0.9796	1.3612	0.0278	941.507	21.3598	44.08	
611	612	1677	1676.8	34.4	2.2	1.8264	114.9664	109.5812	3.9206	3.797	0.1236	0.9682	0.9528	0.0298	838.4284	13.3192	62.9506	
612	610	1676.8	1675.6	33.2	2	1.7312	108.8872	103.86	3.7174	3.598	0.1196	0.9678	0.9538	0.0308	838.0806	13.323	62.906	
614	644	3629.8	3629	120	7	6.994	434.4338	419.6466	6.9376	6.629	0.3082	0.9558	0.966	0.043	1209.8154	19.4772	62.1134	
615	599	4798	4796.4	442.6	4.6	4.7308	270.7208	283.845	3.5504	3.126	0.4244	0.8804	1.0482	0.1252	1199.1662	20.955	57.2272	
620	545	2641	2640.4	24	5	3.2278	195.0568	193.6798	4.4004	4.091	0.3094	0.9296	0.993	0.07	880.2562	14.5674	60.4318	
622	188	1857.2	1856.6	357.2	2.8	2.631	111.8296	157.865	5.101	4.818	0.283	0.9448	1.4118	0.0782	928.3986	21.8428	42.5046	
625	189	1931.8	1931.8	39.4	2	2.1248	92.5708	127.4714	3.959	3.833	0.1254	0.9682	1.377	0.0436	643.9712	14.7792	43.5722	
626	627	1723	1722.6	87.2	2	2.5898	163.8094	155.385	5.4112	5.266	0.1454	0.973	0.9486	0.0252	861.4678	13.6196	63.2542	
627	107	1722.6	1722.4	153	6	5.2632	332.1368	315.799	10.9994	10.678	0.3206	0.971	0.9508	0.0278	861.3378	13.6496	63.1048	
628	626	1722	1723	23.4	1.2	2.0084	126.547	120.5002	4.1982	4.07	0.1282	0.9696	0.9524	0.0294	861.042	13.665	63.0116	
631	568	1857.6	1857.4	0	4	3.0846	128.4036	185.0858	5.9784	5.53	0.4484	0.9252	1.4414	0.108	1857.4538	44.6234	41.6252	
636	639	1675.2	1675.4	37.8	1.8	2.1736	136.4222	130.4172	4.6712	4.51	0.1606	0.9656	0.9558	0.0328	837.5678	13.345	62.7638	
637	629	3656.8	3655.8	224.4	7.2	6.1246	377.398	367.474	6.0304	5.717	0.3134	0.948	0.9738	0.0508	1218.7528	19.7784	61.6204	
638	738	927.2	926.2	0	1.8	1.4172	60.03	85.0376	5.5052	5.182	0.3234	0.9414	1.4168	0.083	926.7768	21.881	42.3566	
639	221	3627.6	3630.6	1787.6	8.6	10.5506	590.338	633.036	10.4672	9.01	1.4568	0.861	1.0724	0.1494	912.4666	16.3078	55.9554	
644	645	3629	3627.6	157.4	7.4	7.7788	483.1216	466.7198	7.7174	7.374	0.3434	0.9556	0.9662	0.043	1209.5224	19.4742	62.1086	
645	649	4355.6	4357.4	971.8	30	32.5196	2009.316	1951.1666	26.8696	25.542	1.3276	0.9504	0.9712	0.048	1089.2394	17.6286	61.789	
647	638	4585.4	4582.6	1105	8.4	9.3462	560.0672	560.757	7.3386	6.766	0.573	0.9218	1.0014	0.0784	1146.1838	19.1268	59.9262	
648	647	4584	4585.4	2686.6	25.2	26.7718	1686.037	1606.3138	20.819	20.171	0.6474	0.9688	0.9526	0.0294	1157.3422	18.377	62.9782	
651	645	727.8	728	0	0.8	1.1378	48.107	68.2832	5.629	5.288	0.3412	0.9392	1.4194	0.0858	727.8086	17.2174	42.2746	
657	542	11357.8	11311.4	9960.6	172.4	162.965	4794.213	9777.8942	51.8248	23.455	28.3704	0.4526	2.0396	1.1166	1886.8102	64.1364	29.4224	
658	659	1856	1856.8	0	2	2.1038	71.0224	126.2372	4.0796	3.443	0.6362	0.844	1.7772	0.2772	1856.4282	54.994	33.762	
659	631	1856.8	1857.6	0	3.2	3.1302	120.6672	187.7994	6.0658	5.197	0.8688	0.8568	1.5564	0.223	1857.4994	48.1818	38.5542	
661	553	2276.2	2275.2	181.6	5.2	4.0568	187.515	243.42	6.417	5.932	0.485	0.9244	1.298	0.098	1138.0222	24.6218	46.2204	
663	584	1528.8	1529.6	87.8	1.2	1.9672	107.7402	118.0332	4.6314	3.902	0.7294	0.8426	1.0954	0.1724	764.6066	13.961	54.767	
691	238	2942.4	2941.4	1036.6	7.6	6.231	268.6574	373.865	7.6222	7.303	0.3192	0.958	1.3914	0.0584	980.9898	22.7526	43.1162	
701	236	853.4	854.2	0	0.6	0.9134	39.9342	54.796	3.8514	3.742	0.1092	0.9714	1.3722	0.0388	853.649	19.5226	43.7258	
701	237	1828.2	1826	37.2	3.2	1.8756	82.3488	112.5394	3.6958	3.606	0.0898	0.9756	1.3668	0.0332	913.4492	20.8054	43.9058	
705	133	1505.8	1507.6	797.2	2.8	2.9436	128.6942	176.6158	7.0336	6.833	0.2002	0.9716	1.3724	0.039	753.333	17.2308	43.7198	
706	123	1238.6	1235.6	0	7.8	6.5206	271.7642	391.2276	18.9766	17.576	1.4008	0.9262	1.4394	0.1062	1236.9958	29.6792	41.6788	
708	136	1510.2	1510.6	135.8	2.6	3.732	156.255	223.9308	8.892	8.273	0.6194	0.9306	1.4332	0.0998	755.5186	18.046	41.8662	
711	562	6394.8	6397.4	1353.8	13.4	18.0052	898.9656	1080.297	10.133	7.783	2.3498	0.7682	1.2018	0.2786	1679.5956	33.6398	49.93	
804	801	3450.2	3450.6	133.8	5	5.2066	317.6126	312.39	5.4318	5.098	0.3338	0.9386	0.9834	0.0604	1150.2016	18.8548	61.0058	
804	803	2637.8	2637.2	87.8	2	2.4142	134.3516	144.8432	3.2952	3.057	0.2384	0.9274	1.078	0.078	1318.543	23.6918	55.6596	
156	7010	941.6	941.2	0	1.8	1.6372	68.8192	98.2352	6.2614	5.848	0.4128	0.934	1.4274	0.094	941.3592	22.3956	42.0336	
188	7002	1856.6	1856.6	0	1	1.3286	57.6606	79.711	2.5762	2.485	0.0912	0.9644	1.3824	0.049	928.1954	21.3862	43.402	
192	7007	688.8	689.2	0	0.4	0.4652	20.6188	27.9146	2.4306	2.394	0.0366	0.985	1.3532	0.0202	689.0316	15.5474	44.3298	
236	7013	854.2	854.6	0	0.8	0.9764	41.2712	58.5782	4.1126	3.864	0.2488	0.9396	1.4192	0.0858	854.5586	20.2154	42.2808	
528	7005	1160.2	1159.6	0	2.2	1.9198	75.8006	115.1908	5.9576	5.881	0.0768	0.9874	1.5196	0.0196	580.0406	14.6912	39.4844	
603	7009	708	707.4	0	1.8	2.0234	88.476	121.4028	10.293	10	0.293	0.9718	1.3724	0.0392	707.8058	16.1872	43.7198	
7001	106	1225.6	1224.8	611.2	1.8	2.1354	68.2682	128.1246	5.8864	4.182	1.705	0.7104	1.877	0.5434	653.0004	20.4258	31.972	
7004	198	1008.8	1009	0	0.8	1.0614	40.1898	63.6932	3.4578	2.909	0.5488	0.8412	1.585	0.2512	1105.2166	29.1926	37.8596	
7006	104	966.2	965	498.4	1.4	1.5882	48.3902	95.2858	5.502	3.727	1.7746	0.6776	1.968	0.635	519.3086	17.043	30.4962	
7011	208	666.2	666	0	0.4	0.7318	27.9562	43.8952	3.6222	3.076	0.5464	0.8492	1.5704	0.237	727.1334	19.0284	38.2118	
7015	211	409.4	408.6	0	0.8	0.3832	13.6934	22.988	3.0144	2.394	0.6206	0.7942	1.6788	0.3454	457.6076	12.8034	35.7374	
7016	213	321.8	321.4	0	0.4	0.2178	7.51	13.0646	2.0758	1.591	0.4848	0.7666	1.7396	0.4062	377.6382	10.9494	34.4904	
738	7018	926.2	927.2	0	0	0.8626	36.1542	51.7504	3.3504	3.121	0.2294	0.9314	1.4314	0.098	926.6694	22.1068	41.9184	
802	7026	1654.4	1654.2	0	1.8	2.0882	83.3422	125.2938	4.5436	4.03	0.5136	0.8872	1.503	0.17	1654.3132	41.4504	39.917	
803	7025	2637.2	2639.4	0	2	2.9464	160.8842	176.7782	4.0204	3.992	0.0288	0.993	1.0986	0.0078	1319.0504	24.1562	54.607	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
48	1	854.8	855.2	0	1.2	1.3344	56.0284	80.0526	5.6178	5.242	0.3754	0.9332	1.4288	0.0956	854.9998	20.3604	41.9926	
8	20	8550.4	8548.6	1052.8	16.8	15.574	977.985	934.4476	6.5582	6.336	0.2226	0.9662	0.9556	0.0324	1709.855	27.2288	62.7958	
137	8	8549.8	8550.4	1195.4	11	12.8692	802.5862	772.1576	5.2042	4.993	0.2112	0.9592	0.962	0.039	1780.5274	28.5504	62.3642	
1	563	855.2	855.4	0	0.6	0.512	21.384	30.7052	2.1538	2	0.1538	0.9286	1.436	0.1026	855.3676	20.47	41.7848	
18	32	1116.8	1117	477.6	1	1.8598	80.3964	111.5858	5.9936	5.758	0.236	0.9606	1.388	0.0548	558.5438	12.9204	43.2282	
18	37	525.2	525.2	0	0.6	0.4914	20.7854	29.4904	3.3694	3.167	0.2028	0.9398	1.419	0.0854	525.1078	12.4168	42.2902	
21	39	1819	1818	67.8	5.4	4.6256	201.4694	277.5302	9.1576	8.864	0.2936	0.968	1.3774	0.0442	909.195	20.874	43.557	
32	36	1117	1116.8	37.2	1	1.738	72.1436	104.2872	5.6018	5.167	0.4354	0.9224	1.4458	0.112	558.5322	13.4566	41.5046	
36	40	854.8	853.6	0	1.4	1.8504	78.323	111.0278	7.7966	7.333	0.4632	0.9406	1.4176	0.0842	854.4334	20.187	42.3256	
40	46	853.6	853.4	0	2	3.0492	129.7646	182.9552	12.8656	12.167	0.699	0.9456	1.41	0.0768	853.2462	20.05	42.5554	
4	576	837.8	838.4	67.2	0.6	1.7162	70.5134	102.976	7.3692	6.727	0.642	0.913	1.4604	0.1274	500.417	12.18	41.0804	
46	48	853.4	854.8	0	1.2	2.0618	86.9808	123.701	8.6944	8.152	0.5432	0.9376	1.4222	0.0888	853.642	20.2336	42.1896	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1671.2	1671	32.6	1.8	1.9952	86.731	119.6994	4.2972	4.152	0.1454	0.966	1.38	0.047	835.6548	19.2218	43.4766	
63	18	1643.2	1642	129.6	3.2	2.729	113.255	163.737	5.9812	5.515	0.4656	0.9222	1.4458	0.1128	821.4108	19.7926	41.4988	
68	56	1672.2	1671.2	9.4	2.2	1.4474	63	86.8384	3.1168	3.015	0.1016	0.9674	1.3786	0.045	835.777	19.2004	43.5312	
71	63	1644	1643.2	512.6	2	2.1494	90.577	128.9592	4.7082	4.409	0.2992	0.9366	1.4238	0.0904	821.7296	19.4992	42.1422	
84	86	1671	1671.6	65.8	3.2	3.4404	149.4254	206.4346	7.4096	7.152	0.2582	0.9652	1.3814	0.0482	835.7706	19.2438	43.4326	
104	71	979	978	8.2	1.4	1.1732	43.7354	70.392	4.3166	3.576	0.7406	0.8286	1.6096	0.2764	807.4218	21.659	37.2786	
127	49	147.4	147.4	0	0.2	0.3336	14.8616	20.019	8.1586	8.076	0.0828	0.99	1.3472	0.0138	147.223	3.305	44.5434	
127	68	1671.4	1672.2	24.2	1.6	1.5332	66.796	91.9912	3.302	3.197	0.105	0.9684	1.3772	0.0438	835.7396	19.1832	43.569	
19	101	1923.8	1925.2	171.2	3.4	3.6276	156.7312	217.6494	6.7856	6.515	0.2706	0.9602	1.3888	0.0552	962.2544	22.2712	43.2068	
20	132	8548.6	8546.4	2389.4	29	24.893	1523.145	1493.5892	10.4856	9.871	0.6152	0.9414	0.9806	0.0574	1709.2886	27.9354	61.1874	
205	19	1923.8	1923.8	417.2	2.8	3.2952	145.3726	197.7124	6.1664	6.045	0.121	0.9804	1.3602	0.0266	961.8642	21.8032	44.1166	
22	639	1943.4	1943.2	152.6	4.6	4.8984	207.5554	293.9094	9.0764	8.545	0.5308	0.9416	1.4162	0.0828	971.5364	22.9292	42.3702	
237	21	1820.2	1819	52.6	3.2	3.1436	137.526	188.6158	6.2184	6.045	0.1728	0.9722	1.3714	0.0382	909.9474	20.7994	43.749	
309	71	666.4	666	0	2.6	1.7822	75.4964	106.9308	9.6246	9.061	0.5642	0.9416	1.4162	0.083	666.592	15.7356	42.3628	
36	705	262	262.2	0	0	0.255	11.265	15.3094	3.5052	3.439	0.0662	0.9812	1.359	0.0254	262.0218	5.9352	44.1546	
37	150	525.2	524.8	0	1.4	0.7894	34.605	47.3594	5.4118	5.273	0.1392	0.9744	1.3688	0.035	525.0442	11.976	43.8424	
39	127	1818	1818.8	207.8	3.2	3.5514	154.6168	213.0792	7.0312	6.803	0.2282	0.9674	1.378	0.045	743.5134	17.0774	43.5394	
50	625	1926.2	1924.8	320.6	4.8	3.857	163.7558	231.4278	7.2108	6.803	0.4078	0.9434	1.4132	0.0802	962.8414	22.6788	42.4556	
50	628	1735	1734.6	127	2.4	2.7888	164.64	167.3366	5.7862	5.255	0.5312	0.9082	1.0164	0.0934	578.3766	9.7974	59.0358	
51	650	1942.4	1944.4	19.4	0.2	1.5968	99.3808	95.806	2.9582	2.832	0.1256	0.9574	0.9642	0.0412	971.7234	15.6128	62.236	
539	82	3226.6	3227.6	294.4	6.8	7.4284	316.5952	445.7038	8.287	7.848	0.4384	0.9472	1.4076	0.0746	1075.69	25.2394	42.6196	
545	51	1942	1942.4	221	8.6	7.5172	461.0716	451.04	13.94	13.154	0.786	0.9438	0.9782	0.0552	970.6766	15.826	61.3354	
545	59	711.4	711	0	0.8	0.5628	32.1938	33.7582	2.848	2.507	0.341	0.8806	1.0484	0.1254	711.2262	12.43	57.2268	
565	80	9816.6	9808.8	3118.8	79.4	71.819	4302.776	4309.1454	26.3456	24.283	2.0624	0.9218	1.0016	0.0784	1438.7998	24.0156	59.9116	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	711	710	0	1.2	0.6528	33.242	39.169	3.307	3.307	0	1	1.1784	0	710.5964	13.9548	50.9258	
594	76	1932.6	1933	126.8	8	7.857	340.8754	471.4366	14.6316	14.106	0.5256	0.964	1.383	0.0496	966.6068	22.2806	43.3836	
598	81	3228.4	3227.4	59.6	2.4	2.536	109.437	152.1512	2.828	2.712	0.116	0.9588	1.3902	0.057	1076.0272	24.9338	43.1558	
629	50	3662.6	3661.2	711	10	8.1482	387.741	488.886	8.0092	5.864	2.1454	0.7322	1.2608	0.3378	915.5964	19.2406	47.5904	
638	97	3659.8	3662	212.6	6	6.6454	415.3248	398.715	6.5346	6.283	0.2514	0.9616	0.96	0.037	1156.6008	18.506	62.4998	
650	22	1944.4	1943.4	3	3.2	2.7502	156.0794	165.0076	5.094	5.094	0	1	1.0572	0	971.8148	17.1236	56.7518	
7008	4	838.6	837.8	212.6	1.4	0.948	31.655	56.8836	3.696	2.742	0.9536	0.7418	1.797	0.464	461.7082	13.828	33.3902	
76	539	1933	1933.2	35.6	0.8	2.3692	102.493	142.1542	4.4132	4.242	0.1704	0.9614	1.3868	0.0538	966.364	22.3386	43.2604	
79	522	4606.6	4602	2236.2	20.6	17.452	1108.062	1047.1112	13.4446	13.133	0.3118	0.9768	0.945	0.0218	1168.2446	18.3998	63.4928	
80	602	9808.8	9800.6	1883.4	87.6	84.6718	5193.307	5080.2958	31.1034	29.35	1.7538	0.9436	0.9784	0.0552	1633.349	26.6304	61.3348	
81	565	3227.4	3230	143.4	4.8	5.675	245.165	340.4948	6.3288	6.076	0.253	0.96	1.389	0.0556	1076.0364	24.9072	43.2014	
82	202	3227.6	3228	87.4	4	3.4342	148.568	206.0516	3.8298	3.682	0.148	0.9616	1.387	0.0536	1076.0484	24.873	43.2616	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1671.6	1674.2	105	2.6	5.4088	234.5014	324.5218	11.637	11.212	0.4248	0.9638	1.3836	0.0506	836.5984	19.296	43.3584	
97	637	3662	3663.4	234.2	3.4	4.541	284.4494	272.4482	4.4626	4.301	0.1618	0.9636	0.9578	0.0346	915.7882	14.6194	62.643	
100	658	1850.6	1849.6	0	2.6	2.7302	95.6548	163.7928	5.3114	4.653	0.6578	0.8762	1.7118	0.2118	1850.03	52.7976	35.0498	
101	691	2895	2894	933.6	7	5.9014	255.5108	354.0866	7.3386	7.061	0.2778	0.962	1.3858	0.0526	965.0192	22.2886	43.2962	
106	107	1305	1305.2	143.8	2.4	2.0068	76.8676	120.4028	5.5354	4.712	0.8234	0.8512	1.5664	0.2332	826.6	21.5794	38.3078	
107	590	3040	3041.2	1399	3.2	3.5798	191.1826	214.7944	4.2388	3.483	0.7562	0.8216	1.1232	0.2002	760.1236	14.2334	53.4048	
109	594	2895	2896	69.4	6.2	6.1194	262.6918	367.158	7.6078	7.258	0.3502	0.9542	1.3976	0.0644	965.2148	22.4844	42.929	
111	524	3695.8	3696.2	290.2	14.6	13.1718	818.9676	790.3036	12.83	12.273	0.5574	0.9566	0.965	0.0418	1231.9508	19.8138	62.1772	
114	115	963.2	962.8	172.8	2.8	1.8322	70.4026	109.9402	6.8504	6.58	0.2704	0.9606	1.5616	0.0616	481.511	12.532	38.42	
115	574	962.8	961.6	323.2	4	2.5142	91.5058	150.8556	9.4044	8.557	0.8478	0.9098	1.6486	0.1486	497.0692	13.6578	36.3964	
123	705	1280.6	1280.4	0	2.6	3.8876	160.3056	233.2508	10.9292	10.015	0.9142	0.9164	1.455	0.1216	1280.5022	31.0532	41.2368	
124	711	835.2	834.4	0	1	1.0028	42.2192	60.1752	4.3244	4.045	0.2792	0.9354	1.4252	0.092	834.8932	19.8332	42.0972	
130	401	5136.6	5104.8	266	41.2	17.6206	548.8676	1057.2276	12.423	6.432	5.9914	0.5684	1.9316	0.9316	1706.7262	54.7916	34.1032	
131	309	667.2	666.4	0	1.2	0.867	37.1304	52.0226	4.6808	4.455	0.2264	0.9516	1.4012	0.0676	666.8338	15.5714	42.8248	
132	558	8546.4	8547.8	3097.4	28.2	28.8336	1751.308	1730.0186	12.1462	11.35	0.7962	0.9346	0.9878	0.0646	1709.225	28.1408	60.7384	
133	708	1541.6	1540.6	318.8	3.4	2.2204	98.0956	133.2142	5.1852	5.091	0.0942	0.982	1.358	0.0246	770.75	17.4446	44.1834	
136	146	1540.8	1540.4	90.2	2.4	2.3344	96.871	140.0764	5.4554	5.03	0.425	0.922	1.446	0.1126	770.2994	18.5642	41.4936	
146	158	1540.4	1541.8	32	5	3.6414	150.6038	218.4838	8.5064	7.818	0.6884	0.9192	1.4508	0.1174	770.5304	18.6304	41.3592	
150	151	524.8	523.8	0	1.2	1.0214	44.5978	61.2886	7.0116	6.803	0.2086	0.9704	1.3742	0.0408	524.4462	12.012	43.6622	
151	155	523.8	523.8	0	0.2	0.6648	28.7656	39.8786	4.5686	4.394	0.1746	0.9618	1.386	0.053	523.7312	12.1012	43.2816	
155	157	523.8	522.8	0	1.6	1.2082	52.0658	72.4962	8.3068	7.955	0.3524	0.9576	1.3926	0.059	523.636	12.1518	43.0928	
157	194	522.8	522.6	0	0.4	0.6874	29.4924	41.2406	4.735	4.515	0.22	0.9538	1.3982	0.065	522.5482	12.1784	42.909	
158	178	2503.8	2502.8	0	3	2.4068	99.0858	144.4158	3.4612	3.167	0.2948	0.915	1.4576	0.1242	834.4078	20.269	41.167	
178	622	239.6	239.4	0	0.2	0.2656	11.7056	15.9328	3.9906	3.909	0.0816	0.9796	1.361	0.0278	239.557	5.4344	44.081	
178	661	2263.2	2263.4	104.8	1.2	1.5282	64.3004	91.6802	2.4304	2.273	0.1578	0.9352	1.4258	0.0924	1131.6852	26.893	42.0808	
189	205	1924.6	1923.8	132.8	2	2.1064	92.186	126.369	3.941	3.833	0.1076	0.9726	1.3712	0.0372	641.294	14.6514	43.77	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
194	197	522.6	523.4	0	0.8	1.2978	55.4618	77.861	8.9338	8.485	0.4488	0.9498	1.4038	0.0706	522.9244	12.2354	42.7392	
197	586	523.4	523	0	2	0.8556	36.4576	51.3392	5.889	5.576	0.313	0.9468	1.408	0.0748	523.088	12.2768	42.6078	
198	101	969.4	969.8	0	1.4	1.4716	63.1878	88.2936	5.4626	5.212	0.2504	0.9544	1.3972	0.064	969.8586	22.5866	42.939	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
199	663	1553.8	1554.4	296	1.8	1.9028	85.0742	114.1628	4.4072	3.031	1.3754	0.6878	1.3418	0.4188	777.149	17.381	44.712	
200	201	1294.4	1293.6	0	1.8	1.3446	50.2396	80.681	3.741	3.494	0.2466	0.934	1.606	0.106	1293.9754	34.6336	37.363	
201	539	1293.6	1293.4	0	2.2	1.8038	67.1018	108.2392	5.0224	4.67	0.3518	0.93	1.613	0.113	1293.059	34.763	37.1978	
202	598	3228	3228.4	76.4	1.6	2.8324	122.2816	169.9326	3.1582	3.03	0.1282	0.9594	1.3898	0.0562	1076.0788	24.9232	43.1752	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	1095	1095.4	0	0.2	0.8922	39.407	53.534	2.9332	2.879	0.0542	0.9816	1.3586	0.0252	1095.0986	24.7948	44.166	
208	131	667.4	667.2	0	0.6	0.5772	25.0282	34.6336	3.1132	3	0.1132	0.9638	1.3836	0.0504	667.4206	15.3926	43.3606	
209	583	1095.4	1096.8	0	1.8	2.9156	118.9886	174.9492	9.5732	8.682	0.8918	0.907	1.4702	0.137	1096.4396	26.8684	40.8086	
211	212	416.4	416.6	0	0	0.3422	14.751	20.5266	2.9568	2.833	0.1236	0.9584	1.3914	0.0582	416.5038	9.6594	43.1214	
212	214	416.6	416.8	0	0.2	0.2906	12.8598	17.433	2.511	2.47	0.0412	0.9834	1.3558	0.0222	416.5622	9.4118	44.2612	
213	214	320.4	320	0	0.4	0.3408	14.3764	20.4468	3.83	3.591	0.239	0.9374	1.4222	0.0888	320.2868	7.592	42.1898	
214	217	736.8	737.2	314.6	0	0.3932	17.1698	23.5796	1.9196	1.864	0.056	0.9708	1.3732	0.0402	368.5242	8.4348	43.6888	
215	216	1.6	1.6	0	0	0.0016	0.0384	0.088	3.3058	1.322	1.9844	0.4012	2.309	1.3858	1.6	0.0614	26.075	
215	651	736.4	736.4	0	0.4	0.8368	35.0114	50.201	4.0898	3.803	0.2868	0.9302	1.4336	0.1006	736.4928	17.6004	41.8482	
217	215	737.2	738	3.8	0	0.3872	16.1998	23.2318	1.89	1.758	0.1328	0.93	1.434	0.1006	368.689	8.8122	41.8504	
221	614	3533.2	3537.6	540.4	6	8.023	443.374	481.3722	8.1672	6.944	1.2232	0.85	1.0858	0.1628	884.0692	15.9974	55.2688	
226	622	1637.2	1637.4	0	2.6	2.7012	123.0996	162.0662	5.9396	5.9396	0	1	1.3166	0	1637.1934	35.9238	45.5744	
228	701	2667.6	2671	1097	4.2	6.6642	279.021	399.8544	8.989	8.364	0.6256	0.9304	1.4328	0.0998	1129.7778	26.9842	41.8692	
231	233	2670	2669.8	200	2.8	2.341	127.923	140.4494	3.1566	3.136	0.02	0.9936	1.098	0.007	889.8988	16.284	54.6502	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2669.8	2668	67.2	3.4	1.9708	97.0548	118.2484	2.6582	2.618	0.04	0.985	1.2182	0.0182	889.6678	18.0656	49.25	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2668	2667.6	117.6	2	2.2328	97.0106	133.9726	3.013	2.909	0.104	0.9656	1.381	0.0476	1333.8952	30.702	43.45	
235	207	1094	1095	0	0.2	0.5698	28.8102	34.1948	1.875	1.875	0	1	1.1868	0	547.1892	10.824	50.5512	
238	109	2895.4	2895	81.4	6.6	4.5146	195.7054	270.874	5.6148	5.409	0.2058	0.9636	1.3842	0.0508	964.8224	22.2568	43.35	
346	557	7692.8	7696.6	4111.8	28.6	30.203	1621.76	1812.1788	14.1318	11.675	2.457	0.8262	1.1172	0.1942	1794.4036	33.4182	53.7008	
351	556	7694	7698	2217	13.4	15.3162	919.787	918.9698	7.1638	6.619	0.5452	0.9238	0.9992	0.076	1924.119	32.04	60.0544	
401	411	11612	11408.4	4841.6	278.8	163.439	4225.762	9806.3518	51.1578	20.339	30.8186	0.4008	2.322	1.399	1917.8288	74.1754	26.0562	
402	130	5179	5136.6	775.8	94.4	65.8086	2838.34	3948.5112	45.615	35.727	9.8874	0.8346	1.393	0.3022	1733.337	40.1882	45.8942	
411	657	11408.4	11336.2	4045.2	111.2	86.6368	1983.512	5198.202	27.4316	9.661	17.771	0.3532	2.6208	1.6978	1895.2118	82.7798	22.951	
49	7012	147.4	147.2	0	0.2	0.1806	8.0322	10.8324	4.4136	4.364	0.0504	0.9886	1.3488	0.0152	147.2522	3.3098	44.488	
522	525	4602	4605.2	1057	24.8	23.2154	1403.99	1392.9064	18.1512	16.888	1.2632	0.9306	0.992	0.069	1151.0976	19.0334	60.4776	
524	526	5370.4	5371	1781	19.4	23.2544	1374.176	1395.2624	15.5876	14.171	1.4164	0.909	1.0152	0.0922	1228.9384	20.7964	59.095	
525	527	3324.4	3321.6	233.2	11.6	11.0918	695.42	665.5112	12.017	11.591	0.426	0.9646	0.957	0.0338	1107.6374	17.6668	62.6964	
525	706	1280.8	1282.2	0	4.4	6.29	263.691	377.4	17.6616	16.455	1.207	0.9318	1.4312	0.0978	1282.0346	30.581	41.925	
526	523	5371	5370	447	21	21.5082	1335.48	1290.4914	14.4176	13.773	0.6452	0.9554	0.9664	0.0434	1342.6	21.623	62.0924	
527	537	3321.6	3323	1700	15	13.2078	828.1868	792.4714	14.3098	13.804	0.5054	0.9646	0.9568	0.0338	1025.5222	16.355	62.7046	
528	111	3693.4	3695.8	228.6	9.4	10.8608	674.725	651.642	10.5796	10.112	0.4678	0.9558	0.9658	0.0428	1231.8634	19.8286	62.1274	
529	541	3321.4	3323.2	416.6	5.2	7.7786	436.5832	466.7162	8.431	7.28	1.1512	0.8634	1.069	0.146	830.3884	14.795	56.1282	
535	529	3323	3321.4	169.4	5	3.8654	238.436	231.932	4.1894	3.976	0.2136	0.9492	0.9728	0.0496	830.4366	13.463	61.6838	
536	615	4890.8	4892.6	1860.8	3	3.9122	209.384	234.7262	2.8788	2.371	0.5086	0.8234	1.121	0.198	1222.95	22.8494	53.5234	
537	535	3323	3323	523.8	5.4	5.6916	353.6636	341.5038	6.167	5.895	0.2718	0.9558	0.9656	0.0426	830.6692	13.3684	62.1376	
538	586	2027.8	2029	153.4	3.2	2.7656	175.556	165.9416	4.9088	4.794	0.115	0.9766	0.9454	0.0224	676.1016	10.6512	63.4764	
541	538	2029.2	2027.8	607.2	3	3.0288	192.1478	181.7398	5.3742	5.245	0.1292	0.976	0.9458	0.0228	676.3594	10.6622	63.4364	
541	596	1294	1293.4	0	1.8	1.4432	52.9324	86.5864	4.0148	3.682	0.3334	0.9172	1.6358	0.1358	1293.8972	35.276	36.685	
542	548	8621.2	8620	575	20.8	20.8434	904.478	1250.613	8.705	5.811	2.894	0.6678	1.3826	0.4596	2155.0738	49.6632	43.3992	
542	554	2669	2669.6	47.4	1	1.3044	73.3102	78.2698	1.759	1.648	0.1114	0.9368	1.0678	0.0678	1334.7532	23.751	56.2012	
544	536	3043.4	3044.4	386.4	7.2	6.848	428.3264	410.893	8.0994	7.794	0.306	0.962	0.9592	0.036	1014.6088	16.222	62.546	
547	566	1851	1849.2	0	3.8	2.6574	130.3584	159.4448	5.1702	4.612	0.5588	0.8922	1.223	0.132	1850.249	37.7182	49.0566	
547	711	5601	5602.4	159	5.2	6.1156	362.859	366.9322	3.9298	3.587	0.3424	0.9128	1.011	0.088	1867.3432	31.4718	59.342	
548	580	8620	8622.2	156.4	14.8	13.9002	656.3716	833.9972	5.8046	4.217	1.588	0.7266	1.2706	0.3476	2155.25	45.6416	47.2288	
549	226	1636.2	1637.2	0	2.6	2.829	145.998	169.7442	6.223	5.839	0.384	0.9384	1.1628	0.0718	1636.6622	31.7142	51.6062	
549	595	5429.6	5428.6	177.4	7.4	7.9376	474.0766	476.2388	5.2622	4.836	0.4268	0.9192	1.0046	0.0816	1809.9238	30.3028	59.732	
553	351	7693	7694	2687.6	29	29.9226	1751.433	1795.3532	14.0012	12.608	1.3932	0.9006	1.025	0.102	1565.2618	26.7418	58.5334	
554	231	2669.6	2670	69.8	2.4	2.4662	139.5594	147.961	3.325	3.136	0.189	0.9432	1.0602	0.0602	1334.9162	23.588	56.5954	
556	346	7698	7692.8	1574	15	13.419	792.888	805.1496	6.2772	5.706	0.5708	0.909	1.0154	0.0922	1923.9196	32.5614	59.0892	
557	802	1617.2	1617.4	0	1.4	1.4706	60.9574	88.2212	3.2724	3.015	0.2572	0.9218	1.447	0.1136	1617.3654	39.0124	41.467	
557	804	6079.4	6080	463.6	9.6	10.4598	578.0276	627.5812	6.1934	5.266	0.928	0.8502	1.0856	0.1626	1519.9134	27.5036	55.272	
558	559	8547.8	8547.6	1328.6	26.6	26.8844	1615.54	1613.0634	11.3236	10.469	0.8546	0.9248	0.9982	0.0752	1709.429	28.4466	60.0926	
559	560	7452	7453.8	989	32.8	32.1318	1924.017	1927.9038	15.5196	14.297	1.2224	0.9214	1.0018	0.0788	1863.3188	31.118	59.88	
559	561	1095.6	1095.6	0	2	1.7124	97.3378	102.7488	5.626	5.33	0.296	0.9476	1.0554	0.0554	1095.8302	19.2792	56.8406	
560	547	7453.8	7452	535.6	17.2	18.1794	1074.079	1090.761	8.782	7.983	0.7996	0.909	1.0156	0.0926	1863.0534	31.5332	59.0826	
561	577	1095.6	1094	0	4.8	3.4054	192.1	204.3272	11.1924	10.523	0.6696	0.9402	1.0636	0.0636	1095.344	19.4176	56.4104	
562	564	6433.2	6435.4	922.8	7.4	7.6912	419.2268	461.4774	4.303	3.608	0.6946	0.8386	1.101	0.1778	1661.7996	30.488	54.509	
563	600	6589.4	6588	413.4	10	8.309	481.663	498.5492	4.5402	4.049	0.4912	0.8918	1.0348	0.1118	1647.1374	28.4146	57.9682	
564	563	5733.8	5734	249.6	12.6	13.1908	774.3814	791.444	8.2808	7.479	0.8018	0.9032	1.0218	0.0988	1911.5164	32.5608	58.7068	
564	603	701.6	701	0	3.2	2.342	104.0106	140.5002	12.0178	11.864	0.1542	0.9872	1.3506	0.0174	701.3736	15.7904	44.4244	
566	570	1849.2	1849.4	0	1.6	1.7608	82.3114	105.65	3.4278	3.205	0.223	0.9352	1.2836	0.0836	1849.384	39.5626	46.748	
568	536	1846.2	1846.4	0	2.6	2.9512	121.683	177.0738	5.7548	5.273	0.482	0.9162	1.4552	0.122	1846.2278	44.7772	41.231	
569	544	3040.6	3043.4	526	6.8	7.8814	496.5468	472.8942	9.329	9.042	0.287	0.9692	0.9522	0.0292	1013.831	16.0924	63.0014	
570	100	1849.4	1850.6	0	1.6	2.0484	86.8892	122.9078	3.9864	3.758	0.2288	0.9426	1.4144	0.0812	1849.8954	43.6124	42.4184	
574	158	961.6	962	0	1	1.6696	62.3104	100.1702	6.2474	5.83	0.418	0.9332	1.6076	0.1076	961.9868	25.7748	37.3248	
576	124	838.4	835.2	0	4.2	4.205	179.2746	252.3102	18.0878	17.136	0.9516	0.9474	1.4074	0.074	836.9322	19.6316	42.6328	
577	235	1094	1094	0	0.2	0.6102	33.774	36.6278	2.0086	2.0086	0	1	1.0844	0	547.0166	9.8874	55.3242	
580	549	7067.6	7065.8	2205.8	30.2	29.1626	1564.867	1749.7552	14.8536	12.262	2.5916	0.8256	1.1182	0.1952	2062.0154	38.4274	53.6622	
580	581	1554.6	1554.6	92.6	1.8	1.4546	75.6712	87.2932	3.3688	3.186	0.1828	0.9456	1.1536	0.0626	777.324	14.9452	52.0138	
581	582	1554.6	1554.6	42.2	1.6	1.772	89.209	106.3298	4.1038	4.1038	0	1	1.192	0	777.2662	15.4404	50.3394	
582	199	1554.6	1553.8	5	1.4	1.1768	54.4562	70.6048	2.7258	2.7258	0	1	1.2966	0	777.1022	16.7926	46.2762	
583	584	1096.8	1097	0	2.6	1.9948	93.0758	119.6906	6.5466	4.699	1.8468	0.7182	1.2858	0.3628	1096.9654	23.5108	46.66	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2030

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
584	585	2652.2	2652.2	947	2	2.975	174.306	178.5104	4.0382	3.64	0.3984	0.9014	1.024	0.101	884.087	15.0902	58.5892	
585	620	2652.2	2652.8	670.2	2.4	2.7564	166.799	165.4026	3.7412	3.483	0.2586	0.931	0.9918	0.0688	884.2354	14.6138	60.5078	
586	587	2552	2553	1107.8	2.8	4.3832	262.526	262.9912	6.1814	5.696	0.4854	0.9212	1.002	0.0788	638.185	10.6554	59.8938	
587	588	2553	2554.6	77	3	3.9346	244.716	236.0854	5.5472	5.308	0.2394	0.9568	0.9648	0.0416	638.39	10.2646	62.1938	
588	611	2554.6	2556.4	39.2	3	3.6228	217.346	217.3576	5.1026	4.71	0.3926	0.923	1.0002	0.0772	638.968	10.65	59.9972	
590	591	3041.2	3042.4	399.4	3.8	4.632	262.0934	277.9252	5.4828	4.773	0.71	0.8704	1.0604	0.1374	831.1426	14.6894	56.5832	
591	592	3042.4	3042.8	143.2	4.6	5.1358	314.0436	308.1484	6.0772	5.717	0.3602	0.941	0.9812	0.058	1014.159	16.5854	61.1484	
592	569	3042.8	3040.6	66.6	5.2	3.9298	246.5208	235.7806	4.6516	4.49	0.1622	0.9654	0.9564	0.0334	1013.73	16.1594	62.7334	
594	114	963.4	963.2	38.2	2	1.3998	54.5468	83.9956	5.2326	5.097	0.1358	0.9742	1.5398	0.0398	481.6188	12.3606	38.963	
595	553	5428.6	5429.6	150.6	8	8.1722	495.6584	490.338	5.4182	5.056	0.3622	0.933	0.989	0.066	1809.873	29.8408	60.6542	
596	200	1293.4	1294.4	0	1.2	1.6626	61.7542	99.7676	4.6264	4.295	0.3308	0.9286	1.6156	0.1156	1293.9012	34.8394	37.1412	
599	528	4891.2	4888.4	700.8	13.6	10.6386	591.903	638.3382	7.8312	6.703	1.1286	0.8582	1.0784	0.1554	1005.2262	18.068	55.7704	
600	565	6588	6586.6	331.6	16.6	13.3836	809.6444	803.0074	7.3144	6.808	0.507	0.9306	0.9916	0.0686	1646.7338	27.2206	60.496	
601	401	6647.2	6507.2	1065.8	241	132.408	6147.271	7944.4588	72.0288	51.43	20.5988	0.7226	1.2928	0.3698	2206.6484	47.5294	46.9664	
610	636	1587.2	1587.6	132.6	1.6	2.7236	173.4998	163.4264	6.1762	6.052	0.1236	0.9798	0.942	0.0188	529.2194	8.308	63.699	
611	156	970.2	971.2	0	1	1.371	60.3062	82.2644	5.0848	4.97	0.1152	0.9776	1.3642	0.031	970.7836	22.0708	43.9842	
611	612	1586.2	1586.8	30.8	1.4	1.7076	108.757	102.4534	3.8752	3.797	0.078	0.9798	0.9422	0.0192	528.7636	8.3018	63.6918	
612	610	1586.8	1587.2	28.6	1.2	1.618	103.0974	97.098	3.6708	3.598	0.0728	0.98	0.9418	0.0188	529.0136	8.304	63.7076	
614	644	3537.6	3536.6	159.6	7.8	6.8616	423.3622	411.687	6.984	6.629	0.3548	0.9494	0.9724	0.0494	884.2374	14.331	61.7012	
615	599	4892.6	4891.2	441.2	5.4	4.8406	276.1152	290.4386	3.562	3.126	0.4362	0.8774	1.0518	0.1286	1223.0602	21.4418	57.0424	
620	545	2652.8	2653.4	42.6	1.6	2.4902	144.7154	149.4042	3.3786	3.021	0.3576	0.8944	1.0324	0.1094	884.3726	15.2172	58.1306	
622	188	1876.8	1877	373.4	2.6	2.6668	113.057	160.0066	5.1142	4.818	0.2962	0.9422	1.415	0.082	938.5868	22.1392	42.3942	
625	189	1924.8	1924.6	12.4	2.4	2.0984	92.2214	125.9046	3.9252	3.833	0.0918	0.9768	1.3652	0.032	641.54	14.5978	43.9482	
626	627	1733.4	1731.6	53.4	4.6	2.5914	164.6888	155.4808	5.3856	5.266	0.1198	0.9776	0.9444	0.021	577.3944	9.0852	63.5536	
627	107	1731.6	1734.8	123.6	4.6	5.251	334.0554	315.0672	10.9104	10.678	0.2324	0.9788	0.943	0.02	577.5422	9.0786	63.6164	
628	626	1734.6	1733.4	51	3	2.031	127.377	121.8672	4.2184	4.07	0.1484	0.9648	0.9568	0.0334	577.7924	9.2134	62.713	
631	568	1846.8	1846.2	0	3.8	3.064	127.6282	183.8404	5.9746	5.53	0.4442	0.9256	1.4404	0.1072	1846.238	44.3232	41.6554	
636	639	1587.6	1588.8	119	4	4.6586	296.2184	279.5194	10.5622	10.332	0.2302	0.9782	0.9434	0.0204	529.2836	8.3242	63.5846	
637	629	3663.4	3662.6	1738.4	6.8	6.1724	378.1016	370.3566	6.0662	5.717	0.3496	0.942	0.9794	0.0564	915.7684	14.9504	61.2546	
638	738	919.6	918.8	0	2	1.3986	59.536	83.9194	5.478	5.182	0.2962	0.946	1.4096	0.0764	919.1508	21.5934	42.5672	
639	221	3532	3533.2	1651.2	3.6	5.0366	202.053	302.195	5.133	3.168	1.965	0.6176	1.4956	0.5726	772.5122	19.2564	40.1398	
644	645	3536.6	3535.2	144.8	8.2	7.4986	470.813	449.912	7.634	7.374	0.26	0.966	0.9558	0.0328	884.0298	14.0798	62.7858	
645	649	4271.6	4264.4	1646.2	36.2	31.9852	1967.052	1919.1148	26.9966	25.542	1.4548	0.946	0.9758	0.0526	985.3922	16.0232	61.4978	
647	638	4584	4579.4	180.8	11.8	9.2996	559.8144	557.9632	7.3054	6.766	0.5394	0.9262	0.9968	0.0738	1145.6668	19.0314	60.1992	
648	647	4585	4584	2662	24.8	26.7354	1686.249	1604.135	20.7882	20.171	0.6168	0.9706	0.9514	0.0284	1157.4878	18.3522	63.0712	
651	645	736.4	736.4	0	0.6	1.1572	48.6656	69.423	5.6576	5.288	0.3696	0.9346	1.4266	0.0932	736.2612	17.5052	42.0604	
657	542	11336.2	11290.2	9972	166	160.981	4786.967	9658.8406	51.2766	23.455	27.822	0.4574	2.0178	1.0948	1883.9586	63.3554	29.741	
658	659	1849.6	1848.4	0	2.4	2.0926	70.7396	125.5664	4.0738	3.443	0.6308	0.8452	1.775	0.275	1849.033	54.7024	33.8102	
659	631	1848.4	1846.8	0	3.4	3.1082	120.0258	186.4954	6.056	5.197	0.859	0.8582	1.5538	0.2202	1847.6278	47.847	38.619	
661	553	2263.4	2263.4	183.4	2.4	2.265	101.1744	135.9068	3.6024	3.218	0.3842	0.8934	1.3432	0.1432	1131.7842	25.3384	44.6666	
663	584	1554.4	1555.2	94.8	1.8	2.0018	109.5386	120.0998	4.6346	3.902	0.7326	0.842	1.0966	0.1734	777.3704	14.2052	54.7258	
691	238	2894	2895.4	205	3.2	4.2968	185.8644	257.8	5.3432	5.136	0.2068	0.9614	1.387	0.0538	964.9588	22.3072	43.258	
701	236	849.2	849.8	0	0.6	0.9068	39.7402	54.416	3.8432	3.742	0.1012	0.9736	1.369	0.036	849.506	19.387	43.8194	
701	237	1821.8	1820.2	30.2	2.6	1.8694	82.0928	112.1632	3.6952	3.606	0.0892	0.9758	1.3662	0.0328	910.611	20.736	43.915	
705	133	1542.6	1541.6	626.8	4	3.0736	131.7146	184.4208	7.1758	6.833	0.3422	0.9524	1.4002	0.0666	771.0126	17.9922	42.8538	
706	123	1282.2	1280.6	0	7	6.7728	281.4602	406.3578	19.0308	17.576	1.455	0.9234	1.4436	0.1104	1281.129	30.8272	41.5598	
708	136	1540.6	1540.8	259.2	4.6	3.738	159.3476	224.28	8.7332	8.273	0.4602	0.9474	1.4074	0.0744	770.4722	18.074	42.6282	
711	562	6436.8	6433.2	1356.2	22.2	17.9606	904.1944	1077.6298	10.0488	7.783	2.2656	0.7748	1.1918	0.2688	1689.3652	33.5568	50.3592	
804	801	3428.2	3428.8	134.6	4	5.1664	315.6424	309.972	5.4234	5.098	0.3254	0.94	0.9822	0.059	1143.0678	18.7088	61.098	
804	803	2651.8	2652.6	92.2	2	2.4368	135.108	146.2072	3.3076	3.057	0.2508	0.9242	1.0818	0.0818	1325.9648	23.915	55.4528	
156	7010	971.2	971.6	0	0.6	1.0522	44.5166	63.1296	3.9002	3.667	0.2332	0.9402	1.4182	0.0848	971.2682	22.956	42.31	
188	7002	1877	1877.6	0	0.8	1.3448	58.3026	80.6722	2.5786	2.485	0.0936	0.9638	1.3836	0.0502	938.5304	21.6438	43.3634	
192	7007	710	710	0	0.6	0.7994	35.6322	47.969	4.0538	4.015	0.0384	0.9906	1.3462	0.0126	709.9582	15.9294	44.5728	
236	7013	849.8	849.8	0	1	0.9756	41.0256	58.5252	4.1328	3.864	0.2692	0.9356	1.4262	0.093	849.471	20.197	42.0984	
528	7005	1195	1191.6	0	5.4	2.8114	77.974	168.6748	8.4108	5.881	2.5302	0.8538	2.1452	0.6452	596.6708	21.5122	34.1538	
603	7009	701	701.4	0	1.8	2.0064	87.594	120.3896	10.307	10	0.307	0.9706	1.3742	0.041	700.7522	16.052	43.6608	
7001	106	1305.6	1305	546.4	2.2	1.8152	62.3852	108.9152	4.6422	3.545	1.0966	0.764	1.7458	0.4124	703.8312	20.4798	34.3706	
7004	198	969.6	969.4	0	1.4	1.1296	42.2726	67.7732	3.8624	3.212	0.6502	0.8316	1.6036	0.2698	1052.8284	28.1322	37.4236	
7006	104	978.6	979	497	0.8	1.5934	49.0392	95.5992	5.4502	3.727	1.7226	0.684	1.9496	0.6164	526.2748	17.099	30.7774	
7011	208	667.2	667.4	0	0.6	0.7294	28.0104	43.7518	3.6032	3.076	0.5274	0.8536	1.562	0.2286	728.5486	18.9664	38.4142	
7015	211	416.6	416.4	0	0.6	0.3904	13.9432	23.4128	3.0142	2.394	0.6202	0.7942	1.6788	0.3454	465.9528	13.0402	35.7388	
7016	213	320.4	320.4	0	0.2	0.218	7.4868	13.0806	2.0846	1.591	0.4936	0.7632	1.7472	0.4136	376.4762	10.963	34.3442	
738	7018	918.8	918.6	0	1.2	0.8506	35.8598	51.0282	3.3312	3.121	0.21	0.937	1.4232	0.0896	919.116	21.7982	42.1648	
802	7026	1617.4	1618.8	0	1.4	2.0354	81.5166	122.1258	4.5278	4.03	0.4978	0.89	1.498	0.1646	1618.0738	40.4026	40.0572	
803	7025	2652.6	2652	0	3	2.9712	161.7606	178.2778	4.0328	3.992	0.041	0.9898	1.102	0.011	1326.2372	24.361	54.444	

NO BUILD 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
1	563	1250	1249	0	1	1.07975	44.25725	64.762	3.10925	2.833	0.27625	0.9113	1.46325	0.13	1249.6175	30.47625	41.00425	
202	1	1250.75	1250	0	1.75	1.8415	76.00775	110.489	5.303	4.864	0.439	0.9175	1.45375	0.1205	1250.22025	30.29	41.27375	
21	39	884.5	866.75	0	19.75	10.4983	77.90475	629.89675	45.84975	7.121	38.72875	0.1925	8.58475	7.25125	875.18575	117.9385	8.66275	
36	40	1892.75	1894.75	240.25	2.5	3.828	161.7158	229.684	7.27875	6.833	0.44525	0.939	1.42	0.087	946.62825	22.40825	42.24875	
39	42	866.75	848.5	0	20.75	10.9968	66.765	659.79875	49.3685	6.227	43.141	0.1578	10.57025	9.237	857.7085	141.271	7.101	
40	48	1894.75	1893	61.75	5.25	4.08225	170.0525	244.9295	7.75775	7.182	0.57575	0.9258	1.44025	0.107	947.1295	22.73625	41.661	
44	88	9842.5	9822.25	115.5	39	20.777	1124.974	1246.622	7.6605	6.336	1.3245	0.8675	1.11625	0.19325	1966.843	36.32575	56.3885	
4	576	582.75	584	44.75	0.25	1.16325	49.05625	69.7875	7.17825	6.727	0.45075	0.9373	1.423	0.08925	348.13875	8.2545	42.17525	
59	82	2091	2087.25	152	8.5	4.81	163.346	288.60475	8.38575	6.258	2.12825	0.8098	1.787	0.45325	1044.147	30.74725	36.43125	
84	86	1888.25	1886.75	41.75	5	2.75675	119.4133	165.413	5.25775	5.061	0.19725	0.9625	1.38525	0.052	943.86425	21.79075	43.31225	
137	44	9859.75	9842.5	61.5	31.5	16.944	926.7	1016.648	5.96525	4.993	0.97225	0.8665	1.10275	0.17975	2055.87225	37.5905	56.31475	
18	133	1247.5	1249.75	0	1	3.20525	132.443	192.30675	9.23925	8.485	0.7545	0.9183	1.45175	0.1185	1248.7495	30.21975	41.32625	
18	198	259.5	259.75	0	0.5	0.24675	10.87025	14.82025	3.4225	3.348	0.074	0.9788	1.363	0.02925	259.7045	5.90125	44.0285	
19	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
195	18	1503	1507	86.25	1	2.8165	109.487	169.0055	6.7335	5.818	0.915	0.8645	1.543	0.20975	752.72225	19.365	38.8995	
197	37	585.5	582.75	0	4	1.20875	26.12825	72.524	7.79775	3.576	4.22225	0.725	2.90775	1.57425	584.56475	27.04275	32.63475	
200	36	1892.5	1892.75	469.75	3.25	2.96325	129.7585	177.791	5.6365	5.485	0.1515	0.973	1.37025	0.03675	946.305	21.61	43.79175	
218	22	2349.5	2350	61.5	1.5	1.72875	104.593	103.723	2.649	2.465	0.184	0.9308	0.99175	0.06875	1175.00225	19.42025	60.49175	
222	51	1031.5	1016.5	0	15.5	5.46125	62.84	327.68775	19.61275	4.909	14.70375	0.291	5.32675	3.99375	1024.0605	89.0015	13.0945	
22	257	2350	2349.75	28.75	1	1.5525	94.799	93.138	2.3785	2.234	0.144	0.9395	0.98275	0.05975	1174.974	19.23975	61.064	
226	49	1485	1486.25	0	1.75	2.442	106.0923	146.5145	5.91625	5.712	0.20425	0.9658	1.38075	0.04775	1485.85675	34.19975	43.44675	
229	58	2096.5	2097.25	0	2	2.26975	79.81475	136.19575	3.89725	3.426	0.47125	0.8795	1.70625	0.20625	2096.61625	59.628	35.16825	
230	57	2098	2097	0	3.5	3.6645	139.8378	219.8535	6.28875	5.333	0.9555	0.848	1.572	0.239	2097.5665	54.9635	38.164	
244	84	1890.25	1888.25	77.25	4.75	4.1965	182.0895	251.79	7.9985	7.712	0.28625	0.964	1.38275	0.04975	944.4335	21.76575	43.38925	
249	59	2095.75	2091	559.5	7.75	3.66125	126.4688	219.665	6.35575	4.833	1.52275	0.8178	1.75325	0.42	1046.63925	30.2985	36.794	
32	199	1633.25	1631.75	0	3	2.22875	90.88025	133.7265	4.916	4.455	0.4615	0.9063	1.4715	0.138	1632.139	40.027	40.7765	
37	537	582.75	579.75	0	3.5	0.9415	17.61175	56.487	6.1365	2.424	3.7125	0.6548	3.375	2.042	581.19275	31.06775	29.456	
48	207	1893	1892.5	2.5	1	1.45725	60.9415	87.426	2.771	2.576	0.1955	0.9295	1.43475	0.101	946.385	22.62775	41.828	
49	136	1987	1987	247.75	1.5	1.562	66.24425	93.712	2.82925	2.667	0.1625	0.9425	1.41475	0.081	993.66275	23.428	42.4145	
50	628	4270	4269.75	85	7.75	8.27225	489.219	496.33775	6.97525	6.346	0.62875	0.91	1.01475	0.0915	2134.77425	36.09725	59.14175	
565	80	10712	10725.5	3262.75	69.25	79.1278	4699.598	4747.654	26.57525	24.283	2.29225	0.9138	1.01025	0.08725	1571.4935	26.4595	59.39425	
57	568	2097	2095.25	0	3.5	2.4945	103.2228	149.67625	4.28425	3.939	0.3445	0.9195	1.45025	0.11675	2096.2175	50.65975	41.3805	
58	230	2097.25	2098	0	2.25	2.84525	96.13075	170.72275	4.88325	4.125	0.75825	0.845	1.77575	0.27575	2097.40125	62.081	33.78975	
596	76	1518.75	1518.25	0	4	3.25875	118.4828	195.5295	7.7245	7.023	0.702	0.9093	1.64975	0.14975	1518.4205	41.76375	36.3655	
598	81	3615.75	3616.25	69.25	2.75	2.8525	122.5773	171.15975	2.84	2.712	0.128	0.9548	1.39625	0.06325	1205.22725	28.0485	42.97025	
610	21	896	884.5	0	13	5.98225	50.75075	358.9335	25.6965	4.561	21.13575	0.2158	7.5125	6.17925	890.245	104.9375	9.703	
629	50	4269	4270	75.25	6.75	7.316	433.4735	438.95125	6.168	5.622	0.5455	0.9115	1.0125	0.0895	2135.01925	36.03325	59.25325	
63	251	851.5	851.5	0	0.75	0.72675	31.453	43.5965	3.07175	2.955	0.11675	0.9618	1.38625	0.053	851.64675	19.674	43.2865	
638	97	4272.75	4271.75	116	9.5	8.407	484.6525	504.424	7.0845	6.283	0.8015	0.887	1.04075	0.11775	2136.032	37.05275	57.65425	
661	49	500	500.75	0	0.5	0.6165	26.8075	37.0015	4.4385	4.288	0.1505	0.966	1.38025	0.04675	500.15525	11.50575	43.47375	
7008	4	582.5	582.75	137.25	0	0.5965	22.00675	35.78375	3.34425	2.742	0.60175	0.82	1.626	0.29275	320.9815	8.69875	36.902	
706	32	1634.5	1633.25	0	10	8.90675	365.3808	534.39475	19.62825	17.894	1.73425	0.9115	1.4625	0.12925	1633.53875	39.81975	41.024	
76	190	1518.25	1517.25	0	3.75	2.7075	100.3208	162.4565	6.4225	5.949	0.4735	0.9263	1.6195	0.1195	1517.7445	40.96325	37.0495	
79	522	5419.25	5418.75	1416.5	20.25	21.084	1305.561	1265.0345	13.7855	13.133	0.6525	0.9525	0.96875	0.04575	1835.294	29.6385	61.923	
80	602	10725.5	10749.5	1964.5	70.25	93.3908	5688.769	5603.4513	31.318	29.35	1.9685	0.937	0.985	0.062	1789.177	29.3725	60.91475	
81	565	3616.25	3614.75	141	7.5	6.388	274.5773	383.284	6.3605	6.076	0.285	0.9553	1.39575	0.06275	1205.12775	28.03725	42.98375	
82	195	1500	1503	664.25	1.5	2.4335	102.6413	146.0105	5.8355	5.47	0.36575	0.9373	1.42275	0.089	750.61525	17.79625	42.181	
82	197	587.25	585.5	0	2.5	1.00575	22.43225	60.34175	6.4405	3.061	3.38025	0.751	2.806	1.47275	586.34375	26.28775	33.78975	
84	246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1886.75	1885.5	121.75	6.25	5.98175	258.58	358.9155	11.42025	10.97	0.4505	0.9605	1.388	0.05475	942.8885	21.8125	43.22475	
88	132	9822.25	9761	2177.25	89.5	33.8555	1745.366	2031.3228	12.552	9.871	2.6815	0.8283	1.17375	0.25075	1958.668	37.99275	53.83525	
97	637	4271.75	4270.75	47	5	4.66825	273.4178	280.10725	3.935	3.545	0.38925	0.9013	1.0245	0.10125	2135.5705	36.4635	58.56875	
100	701	2999.25	2986.75	1291.25	17	12.7715	204.6448	766.288	15.427	5.47	9.9575	0.379	3.76075	2.42725	1007.951	62.90425	17.0545	
101	150	658	659.25	0	0.25	0.80825	34.434	48.47775	4.4165	4.182	0.2345	0.947	1.40825	0.07475	658.74025	15.4565	42.61	
104	221	1535	1536	0	1	2.3445	138.1153	140.682	5.49725	4.983	0.5145	0.9065	1.01825	0.09525	1535.26175	26.06325	58.9195	
106	107	5752.25	5755.5	663.75	6.25	7.612	441.4063	456.7275	4.76175	4.248	0.51375	0.8923	1.0345	0.1115	1438.658	24.81	57.989	
107	590	5755.5	5760.25	1551	9	10.1715	609.597	610.29625	6.3595	5.864	0.49575	0.9223	1.001	0.078	1439.4785	24.0185	59.93225	
109	190	2094.5	2096.75	44.5	1.5	3.217	138.5383	193.01675	5.525	5.288	0.237	0.9573	1.39325	0.05975	1047.967	24.3345	43.06825	
111	524	3580	3582.75	339.5	10.75	12.7833	794.006	766.995	12.84325	12.273	0.57025	0.9558	0.96625	0.04325	1194.4025	19.2295	62.114	
114	189	995.5	994.75	0	1.25	0.9115	45.60725	54.69425	3.298	3.2915	0.0065	0.998	1.19925	0.0025	995.06675	19.88875	50.0315	
115	661	2889.5	2888.25	0	3	3.2245	136.2423	193.48375	4.0185	3.773	0.2455	0.939	1.41975	0.08675	962.99775	22.79325	42.25	
123	211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
124	711	586.75	588.5	0	0	0.86	36.73125	51.59025	5.26725	5	0.26725	0.9493	1.4045	0.07125	587.7045	13.75725	42.71775	
130	401	5771	5737.5	93.5	45.5	36.5803	616.8285	2194.8148	22.89075	6.432	16.45925	0.2818	3.559	2.559	1918.0535	113.74775	16.89	
131	101	657.5	658	0	0.25	0.5935	23.91825	35.61375	3.25	2.909	0.34075	0.8953	1.4895	0.15625	657.753	16.323	40.28175	
132	558	9761	9708.75	3085.25	94.25	42.731	1994.526	2563.8545	15.9105	11.35	4.56125	0.7348	1.294	0.371	1946.59775	41.704	47.77	
133	201	1249.75	1252	0	2.25	4.53725	189.415	272.24625	13.06675	12.121	0.9455	0.9278	1.43725	0.10425	1250.1405	29.94725	41.744	
145	109	2093.5	2094.5	20.5	1.5	1.954	84.49025	117.253	3.35875	3.227	0.1315	0.9605	1.3875	0.0545	1047.20375	24.22125	43.2375	
145	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
150	106	659.25	660.5	0	0.25	1.1205	53.5025	67.2275	6.11225	4.49	1.6225	0.7348	1.2565	0.3335	660.03225	13.82225	47.74575	
182	188	2091.5	2094	64.25	2.75	3.68375	160.538	221.03325	6.33625	6.136	0.19975	0.9685	1.37675	0.04325	697.64725	16.00925	43.581	
188	145	2094	2093.5	23	1.5	1.99825	86.83775	119.89325	3.43575	3.318	0.1175	0.966	1.38075	0.04725	697.876	16.059	43.46075	
189	205	994.75	996.25	0	0.75	1.02925	45.82075	61.749	3.72125	3.682	0.0395	0.9893	1.34775	0.0145	995.607	22.36175	44.52175	
190	191	3614	3612.25	272.5	6	5.30975	222.387	318.57975	5.2905	4.924	0.36625	0.9308	1.4325	0.09925	1204.31075	28.754	41.88425	
191	192	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
191	598	3612.25	3615.75	229.25	5.75	9.25775	399.0645	555.4775	9.22175	8.833	0.3885	0.958	1.39175	0.05875	1204.7235	27.9485	43.10575	
198	200	1890.25	1892.5	753.5	4	4.2305	180.8545	253.84075	8.0545	7.652	0.403	0.9498	1.40375	0.07025	945.45825	22.117	42.74975	
199	198	1631.75	1630.5	0	3	1.846	75.37125	110.7495	4.07375	3.697	0.37675	0.9073	1.46925	0.136	1630.98425	39.94225	40.83375	
201	202	1252	1250.75	0	2.75	3.1495	130.6175	188.958	9.058	8.348	0.7095	0.9215	1.4465	0.11325	1251.6495	30.1785	41.4755	
203	209	1619.25	1605.75	0	17.75	5.7365	148.7425	344.18975	13.36025	7.379	5.98125	0.651	2.41425	1.081	1612.6495	62.19425	29.29125	
203	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

NO BUILD 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
205	206	996.25	996.25	0	0.75	0.93725	36.9705	56.241	3.3885	3.341	0.0475	0.986	1.5215	0.0215	995.94	25.25125	39.44075	
206	207	996.25	996.5	0	1	0.89075	35.095	53.434	3.218	1.951	1.267	0.6063	1.5225	0.59925	996.248	25.2805	39.40725	
207	115	2889	2889.5	1.25	2.25	3.043	129.113	182.5865	3.7925	3.576	0.21675	0.943	1.41425	0.08075	962.8765	22.69425	42.43025	
209	210	1605.75	1597.25	0	9.75	3.30325	84.33275	198.19475	7.7665	4.212	3.5545	0.646	2.4585	1.12525	1601.7155	62.738	29.0615	
210	212	1597.25	1582.5	0	15.25	5.406	134.98	324.3635	12.82075	6.788	6.03275	0.6365	2.51825	1.185	1590.8345	63.714	28.63975	
211	235	1626	1622.75	0	4.5	1.64675	50.152	98.81275	3.81425	2.223	1.59125	0.7103	2.05925	0.85925	812.27625	26.6735	35.514	
212	214	3514.75	3495	1010.75	23.75	6.86975	187.8955	412.19275	7.33375	2.969	4.365	0.5258	2.2805	1.35725	1168.53875	42.72425	34.18125	
213	212	1945	1932.25	63.75	14.25	5.00875	160.4595	300.529	9.556	4.584	4.972	0.688	1.9245	1.00125	969.366	30.25925	44.71275	
214	215	3495	3461.25	686	39	11.503	326.6768	690.174	12.3045	5.203	7.1015	0.5175	2.183	1.25975	1159.17625	40.81675	33.646	
215	216	3461.25	3425.25	599.25	43.75	15.7933	439.954	947.592	16.954	7.08	9.87375	0.4885	2.21025	1.28725	1147.13975	41.1795	31.742	
216	217	3425.25	3386.75	153	50	19.2933	535.2818	1157.592	20.8235	8.706	12.11725	0.4628	2.20775	1.28475	1135.05475	40.91075	30.0775	
217	218	2349.5	2349.5	40	1	1.348	80.097	80.877	2.06675	1.888	0.1785	0.9143	1.0105	0.0875	1174.75625	19.77	59.42325	
217	222	1037.25	1031.5	0	7	2.7105	33.1	162.63125	9.66275	2.561	7.102	0.3153	5.03125	3.69825	1034.12875	84.6835	14.19	
219	262	820.75	820.25	483	1	1.4785	46	88.711	6.4855	4.485	2.0005	0.6915	1.92825	0.595	344.02275	11.05775	31.12375	
221	258	3889.75	3893.75	1801.5	10.25	11.2825	524.7793	676.94875	10.37925	7.469	2.9105	0.7228	1.28275	0.35975	1368.98875	29.43275	46.9805	
223	224	496.75	496.25	0.75	0.5	0.50125	15.04725	30.06925	3.6325	2.424	1.20825	0.6673	1.998	0.6645	378.3335	12.60025	30.0345	
224	237	496.25	495.75	0	0.75	0.3555	14.1805	21.332	2.581	2.288	0.293	0.8863	1.504	0.171	495.844	12.43175	39.89025	
227	237	465.5	465.5	0	0.75	0.41775	17.369	25.0575	3.22825	2.985	0.2435	0.9248	1.442	0.109	465.53175	11.19325	41.6085	
228	229	2098.25	2096.5	0	3.75	3.29875	131.46	197.92625	5.66225	5.015	0.64675	0.886	1.50525	0.172	2097.00375	52.62075	39.8685	
231	233	3029.75	3017.25	279.75	16	8.6865	144.304	521.1995	10.4115	3.436	6.97525	0.4073	3.636	2.436	1007.83775	60.66875	20.364	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	3017.25	3007	309.75	15	9.5875	154.6308	575.24425	11.524	4.106	7.418	0.413	3.74225	2.40875	1004.24475	62.265	18.5765	
234	100	3007	2999.25	342.5	11.5	8.86275	146.7048	531.7705	10.6825	3.909	6.77325	0.407	3.6435	2.3105	1501.16725	90.6895	18.312	
234	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
235	203	1622.75	1619.25	0	4.5	1.49225	42.6765	89.5275	3.468	2.0955	1.3725	0.7325	2.19575	0.869	810.547	28.33925	33.19325	
237	256	961.25	962.25	710	0.75	0.77475	32.79275	46.48	2.89675	2.727	0.1695	0.9418	1.416	0.083	480.96	11.362	42.3825	
238	239	1994.25	1994.5	113.25	7.5	6.55275	284.8895	393.16075	11.82475	11.424	0.40075	0.966	1.38025	0.04675	997.49225	22.94325	43.47525	
239	242	1994.5	1994	51.25	3.5	2.93325	127.26	175.99	5.29625	5.106	0.19025	0.9643	1.383	0.04975	996.933	22.97775	43.38575	
242	244	1994	1993.5	179.5	5	3.9215	169.9425	235.2945	7.08025	6.818	0.262	0.9628	1.38475	0.05125	854.56775	19.72	43.3345	
244	245	103.25	103.5	0	0	0.2645	11.75325	15.84475	9.21125	9.106	0.10525	0.9888	1.34875	0.01575	103.2585	2.32	44.4875	
245	247	103.5	104.25	0	0	0.08875	3.941	5.31175	3.06475	3.03	0.034	0.989	1.3485	0.015	104.04425	2.33725	44.49875	
250	249	1250.75	1249.25	17.5	2.25	1.084	35.03275	65.04125	3.14025	2.242	0.898	0.7348	1.86725	0.53375	934.2085	28.907	33.0685	
251	252	851.5	850.25	0	2.5	0.96725	40.30125	58.02075	4.092	3.788	0.304	0.928	1.44025	0.10725	851.16175	20.42325	41.76625	
252	249	850.25	846.5	0	5	2.10725	74.37425	126.42175	8.99075	7.015	1.9755	0.8375	1.709	0.37525	848.15775	24.0285	37.691	
253	254	0.5	0.5	0	0	0.0005	0.011	0.02375	1.42975	0.6135	0.816	0.2145	1.0755	0.614	0.5	0.018	13.94975	
253	651	962.75	964.5	0	0.25	0.737	30.48325	44.236	2.752	2.53	0.22175	0.9198	1.45	0.11675	963.783	23.30975	41.3875	
255	104	1533.75	1535	0	0.5	2.2465	131.0678	134.79275	5.2695	4.731	0.539	0.8978	1.0285	0.10525	1534.45275	26.301	58.359	
256	253	962.25	963.25	18	0.5	0.706	28.0865	42.353	2.63475	2.333	0.30175	0.8868	1.5055	0.1725	481.482	12.101	39.8975	
257	639	2349.75	2349.75	3.25	1.5	3.03375	171.338	182.0285	4.648	4.648	0	1	1.06225	0	1174.8905	20.803	56.4755	
258	614	3893.75	3892.75	77.75	4.75	3.66475	189.513	219.8915	3.37625	2.696	0.68075	0.7995	1.156	0.233	1946.749	37.64675	51.98525	
262	627	820.25	820.75	0	0.5	0.81075	34.026	48.65475	3.557	2.297	1.25975	0.6458	1.42925	0.50625	820.3525	19.55075	41.98375	
346	557	7780.75	7791.75	2536.5	21.25	28.761	1641.302	1725.6448	13.29625	11.675	1.62125	0.8783	1.05125	0.12825	1816.02525	31.8225	57.0795	
351	556	7768.5	7773.75	729.25	6.75	8.518	463.6	511.0895	3.9455	3.304	0.6415	0.8378	1.10225	0.17925	1942.70525	35.69525	54.4485	
401	411	12141	11986	6310.5	242.25	228.644	4428.642	13718.625	68.26575	20.339	47.92675	0.298	3.0985	2.1755	2009.90425	103.76825	19.37275	
402	130	5913	5771	387.5	206.5	160.994	3211.363	9659.6525	98.53575	35.727	62.8085	0.3638	3.00875	1.918	1961.13775	98.317	20.0025	
411	657	11986	11947	5487.75	102.25	90.1643	2086.938	5409.8515	27.1405	9.661	17.47975	0.3565	2.59325	1.67	1994.03425	86.1505	23.15975	
42	7010	848.5	843.25	0	7.25	4.3935	22.903	263.60425	19.97525	2.167	17.80825	0.1285	12.29275	10.95875	845.65175	162.21775	5.78475	
51	7004	1016.5	1008.25	0	10.25	3.9305	42.74425	235.82275	14.293	3.379	10.9145	0.28	5.64025	4.307	1012.05875	93.06	12.59475	
522	525	5418.75	5399.25	2423.25	43.5	26.4165	1502.565	1584.9813	17.57675	15.378	2.1995	0.8793	1.055	0.132	1352.9235	23.7855	57.15125	
524	526	5468.25	5468.5	1998.75	23	23.9325	1398.997	1435.947	15.75775	14.171	1.58675	0.8993	1.02625	0.10325	1251.1355	21.403	58.4555	
525	527	3764.75	3732	1163	47.25	19.2273	887.1585	1153.6428	18.57475	13.101	5.4735	0.8185	1.30875	0.38575	1250.119	27.09375	53.20175	
525	706	1634.5	1634.5	0	8.25	9.2155	379.7943	552.9255	20.2985	18.591	1.708	0.916	1.45575	0.1225	1634.32275	39.65525	41.21425	
526	523	5468.5	5465.75	454	24.75	21.954	1359.206	1317.2208	14.4595	13.773	0.68675	0.9525	0.96925	0.046	1366.45225	22.071	61.9125	
527	537	3732	3667.25	929.5	81.75	23.9478	918.934	1436.8555	23.6095	13.741	9.86825	0.7115	1.586	0.663	1234.598	32.174	46.24825	
528	111	3576.5	3580	234.5	8.25	10.521	653.4008	631.2615	10.58325	10.112	0.4715	0.9555	0.966	0.043	1192.93125	19.2085	62.106	
529	541	4175.75	4137.75	79	45	14.1825	419.7913	850.9495	12.512	5.591	6.921	0.5325	2.06575	1.14275	1386.177	46.83175	34.60475	
535	529	4204.5	4175.75	97	35.25	10.7853	347.6393	647.1305	9.43775	4.594	4.8435	0.5805	1.896	0.973	1396.905	43.339	37.72425	
536	615	4774	4771.25	2444.5	5.25	4.11925	219.6683	247.14525	3.1065	2.549	0.55775	0.8205	1.125	0.202	1193.26	22.37525	53.33025	
537	535	4247	4204.5	844.5	53.25	16.2153	516.1065	972.9185	14.0865	6.766	7.321	0.5878	1.922	0.99875	1074.967	33.77375	38.21	
538	586	2584.25	2556	244.75	32.75	10.7328	222.4545	643.97825	16.044	4.794	11.25025	0.4418	3.0895	2.1665	1285.07575	62.0025	28.70325	
541	538	2617	2584.25	51.5	37.25	11.7898	258.0458	707.37575	17.37025	5.497	11.874	0.4585	2.91725	1.99425	1300.0785	59.398	29.805	
541	596	1520.75	1518.75	0	2.75	2.10225	78.567	126.14625	4.97875	4.653	0.3255	0.9348	1.605	0.105	1519.5365	40.6625	37.38775	
542	548	8841	8835.5	417.5	26.25	20.6993	927.3958	1241.942	8.44525	5.811	2.63425	0.6943	1.3415	0.4185	2209.67925	49.319	45.1185	
542	554	3040.5	3038.5	49.5	4.5	4.33525	83.47625	260.11625	5.17825	1.648	3.53025	0.43	3.1425	2.1425	1519.84175	78.932	25.787	
544	536	2679.5	2679.25	188.5	6	6.3715	396.437	382.29825	8.55825	8.192	0.36625	0.9573	0.96425	0.04125	893.37975	14.35875	62.21925	
547	566	2098.5	2098.5	0	1	1.2325	56.83775	73.9355	2.113	1.773	0.3405	0.8393	1.3005	0.2095	2098.625	45.49875	46.173	
547	711	5957.5	5960	102.25	2.75	4.35225	250.5358	261.13075	2.6295	2.329	0.3015	0.8855	1.04225	0.11925	1986.2285	34.50375	57.56	
548	580	8835.5	8823.25	166.75	26.5	17.673	829.4568	1060.3915	7.2195	5.203	2.0165	0.728	1.28075	0.35775	2207.42475	47.0335	47.3265	
549	226	1484.25	1485	0	2	2.7705	129.3338	166.22425	6.718	6.273	0.44525	0.9338	1.28475	0.08475	1484.52825	31.7995	46.68625	
549	595	5378.25	5377	487	8.75	7.82525	469.4923	469.50725	5.2385	4.836	0.4025	0.9233	1	0.07675	1792.42075	29.87475	60.00225	
553	351	7767.5	7768.5	4710.5	19.25	22.516	1248.958	1350.9588	10.43475	8.906	1.52975	0.8535	1.0815	0.1585	1556.04025	28.05225	55.47925	
554	231	3038.5	3029.75	72	13.75	10.4055	182.1803	624.33025	12.4415	3.93	8.5115	0.4198	3.454	2.363	1517.2105	86.65775	23.07725	
556	346	7773.75	7780.75	946.25	12.25	14.3675	801.3803	862.06425	6.64875	5.706	0.942	0.8583	1.0755	0.1525	1944.5255	34.86275	55.79725	
557	802	1615.75	1616.75	0	0.75	1.57775	65.8055	94.668	3.51475	3.258	0.25725	0.927	1.43875	0.1055	1616.0565	38.74775	41.70725	
557	804	6176	6180.5	191	7.25	10.2573	587.3765	615.44025	5.97675	5.266	0.7115	0.881	1.04775	0.12475	1544.4965	26.9715	57.26675	
558	559	9708.75	9695	3897.25	53	39.4435	1833.459	2366.6168	14.702	10.469	4.2335	0.7218	1.2965	0.3735	1940.01275	41.73625	46.90375	
559	560	8042	8053.25	3456.75	27.25	36.6208	2077.356	2197.242	16.37925	14.297	2.082	0.873	1.05775	0.1345	2011.819	35.46525	56.74325	
559	561	1653	1645.25	0	12.75	4.3315	146.4785	259.872	9.784	5.33	4.4545	0.6433	1.83575	0.83575	1649.054	48.76075	38.59875	
560	547	8053.25	8056	1074.5	24.25	26.3475	1440.187	1580.85	11.77425	9.902	1.87225	0.8415	1.0975	0.1745	2013.82125	36.8415	54.68475	
561	211	1645.25	1626	0	25	8.876	286.9338	532.56425	20.30825	11.479	8.82875	0.6743	1.93	0.839	1636.0805	50.61075	37.0755	
562	564	6550.75	6550	887.25	7.25	7.69075	426.7578	461.43425	4.22775	3.608	0.619	0.8535	1.0815	0.1585	1691.6525	30.48525	55.48325	

NO BUILD 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
563	600	7096.5	7096.5	425.25	7	9.15275	518.8068	549.15725	4.643	4.049	0.594	0.8723	1.05825	0.13525	1774.158	31.29925	56.68425	
564	563	5846.5	5847.5	240.25	11.5	13.4505	789.7058	807.035	8.28075	7.479	0.80175	0.9033	1.022	0.099	1949.34325	33.20175	58.70725	
564	603	703.5	704.75	0	2	2.33475	104.3348	140.079	11.94675	11.864	0.083	0.9933	1.34275	0.00925	703.5605	15.74325	44.68725	
566	228	2098.5	2098.25	0	3.25	3.00425	134.3373	180.262	5.153	4.609	0.54375	0.895	1.3415	0.1415	2098.52225	46.932	44.7445	
568	536	2095.25	2094.75	0	3.25	3.31275	138.1015	198.77025	5.6915	5.273	0.41875	0.9265	1.439	0.106	2095.33525	50.264	41.68975	
569	114	995.5	995.5	0	0.75	0.601	31.48525	36.05275	2.173	2.07	0.10275	0.9528	1.145	0.054	995.46275	18.99825	52.3985	
569	544	2680	2679.5	115.25	6.25	7.92075	489.6465	475.246	10.6425	10.122	0.52	0.951	0.9705	0.04725	1339.5505	21.6695	61.82425	
576	124	584	586.75	0	0.25	2.896	125.4318	173.7755	17.805	17.136	0.669	0.9625	1.38525	0.052	585.57	13.521	43.31025	
580	549	6866.25	6862.5	2033.25	26.5	25.5175	1397.477	1531.0623	13.38425	11.276	2.108	0.8423	1.0955	0.1725	1980.85275	36.17	54.76375	
580	581	1957	1955.75	62.5	2.5	1.152	42.232	69.12825	2.13725	1.555	0.583	0.8158	1.65025	0.45025	978.003	26.681	40.79325	
581	582	1955.75	1951	115	6.75	3.3015	105.068	198.08825	6.15675	4.303	1.85375	0.8373	1.90775	0.57425	976.68625	30.68975	37.6775	
582	213	1951	1945	335.75	10.5	5.1355	160.5388	308.13025	9.661	4.563	5.098	0.6145	1.9545	1.03125	974.3025	31.167	39.93725	
586	587	2556	2524.25	499.75	37	12.8255	261.1595	769.54475	19.501	5.696	13.805	0.4363	3.1605	2.23725	1269.72525	62.357	28.36575	
587	588	2524.25	2494.25	322	35.75	12.0085	240.655	720.519	18.4825	5.308	13.1745	0.4178	3.2145	2.2915	1255.58975	62.65375	27.139	
588	611	2494.25	2464	171.5	33	11.3528	210.778	681.15825	17.73475	4.71	13.025	0.3613	3.476	2.55275	1239.31825	66.7505	23.48325	
590	591	5760.25	5763.5	526.75	11	10.9273	622.0525	655.64025	6.8275	5.979	0.8485	0.8758	1.054	0.131	1440.543	25.30525	56.9215	
591	182	2091.25	2091.5	89.25	2.5	3.0115	130.311	180.6855	5.18375	4.985	0.199	0.9615	1.38625	0.05325	1045.6565	24.16475	43.274	
591	569	3672.25	3675.5	627.5	8	9.709	574.7593	582.5485	9.513	8.664	0.8485	0.911	1.0135	0.0905	1224.6685	20.68775	59.204	
595	553	5377	5377.75	1298	19.5	19.2793	1177.196	1156.7548	12.908	12.126	0.782	0.9395	0.98275	0.0595	1792.2705	29.3525	61.06175	
599	528	4771.25	4767.75	606.5	11	10.0323	577.1393	601.94475	7.57275	6.703	0.87025	0.885	1.043	0.12	980.15275	17.038	57.532	
600	565	7096.5	7097.25	345	14	14.5828	872.2953	874.969	7.398	6.808	0.59	0.9203	1.003	0.08	1774.15975	29.66	59.81625	
601	401	6594	6403.5	480.25	305	259.995	6064.635	15599.672	143.3578	51.43	91.9275	0.3593	2.573	1.65	2176.985	93.329	23.33675	
610	636	1529.5	1531.25	0	0.25	2.5565	140.8615	153.40875	6.01775	5.098	0.92	0.8473	1.08975	0.1665	1530.34575	27.77775	55.0745	
611	612	2464	2442	44.75	24.25	8.81575	160.2555	528.93375	13.8455	3.619	10.2265	0.3355	3.5315	2.6085	1226.30325	67.45825	21.812	
612	610	2442	2425.5	20.75	22.5	12.6355	233.7023	758.1275	19.6145	5.318	14.2965	0.316	3.4045	2.4815	1216.91025	65.794	20.53075	
614	644	3892.75	3894	65.75	3.75	4.612	249.954	276.71875	4.25275	3.556	0.69675	0.837	1.104	0.181	1946.54425	35.91625	54.402	
615	599	4771.25	4771.25	374.25	4.25	4.41025	253.898	264.6285	3.328	2.948	0.38075	0.8858	1.04225	0.11925	1192.68775	20.71825	57.569	
626	627	4270	4269.75	228.25	6	6.091	360.6938	365.438	5.135	4.678	0.4565	0.911	1.0135	0.09025	2135.048	36.05225	59.2215	
627	106	5090.5	5091.75	456	7.5	6.4725	369.2818	388.35025	4.577	4.017	0.55925	0.8778	1.0515	0.1285	1696.96	29.74325	57.056	
628	626	4269.75	4270	96.75	5.25	5.097	301.64	305.81875	4.2975	3.913	0.38475	0.9105	1.01375	0.09075	2134.93325	36.07525	59.1815	
636	255	1531.25	1533.75	0	0	1.748	99.84625	104.88375	4.10575	3.608	0.497	0.8788	1.05025	0.12725	1532.52	26.8305	57.13125	
637	629	4270.75	4269	93.75	9.5	7.94075	469.0648	476.4485	6.6945	6.084	0.61075	0.9085	1.0155	0.0925	2135.05225	36.14425	59.0715	
638	738	1298.5	1297.5	0	2.5	1.99	82.12675	119.38725	5.517	5.061	0.45675	0.9173	1.45375	0.1205	1298.29075	31.455	41.28225	
639	221	2349.75	2353.75	126.25	3	5.1495	225.0023	308.9615	7.87575	7.652	0.22425	0.9718	1.37225	0.039	1176.248	26.9195	43.7225	
644	645	3894	3897.75	107.5	7.75	9.13475	518.6778	548.09	8.42425	7.374	1.05025	0.8758	1.0545	0.1315	1947.809	34.30425	56.9245	
645	649	4863.75	4877.25	1144.75	28.25	37.5773	2245.951	2254.651	27.77075	25.542	2.22875	0.9198	1.00375	0.0805	1623.35675	27.16075	59.784	
647	638	5569.75	5571.25	311.25	11	12.417	680.565	745.032	8.024	6.766	1.25825	0.8438	1.095	0.17175	1857.046	33.8825	54.83775	
648	647	5571.75	5569.75	3037.25	33.5	34.0123	2050.372	2040.7363	21.74975	20.171	1.578	0.9273	0.9955	0.072	1876.57525	31.12925	60.284	
651	645	964.5	966	0	1.25	1.58375	66.1715	95.02025	5.90525	5.485	0.4205	0.929	1.4355	0.10225	965.15475	23.09875	41.7995	
657	542	11947	11881.5	8011	223	171.357	5046.406	10281.403	51.8895	23.455	28.435	0.463	2.042	1.119	1986.063	67.43925	30.09675	
661	553	2388.25	2389.75	418.5	10	10.6615	500.3513	639.69675	16.0685	15.082	0.9865	0.9385	1.2785	0.0785	1194.32925	25.449	46.93025	
701	236	993.25	984.25	0	9.25	7.47425	45.69525	448.45525	27.238	3.697	23.541	0.1405	9.8235	8.49025	988.81625	161.738	6.32625	
701	238	1993.5	1994.25	72	4.5	3.961	172.588	237.66625	7.152	6.924	0.22775	0.9683	1.377	0.044	997.0075	22.88225	43.5665	
7013	63	851	851.5	0	0.75	0.8345	35.06725	50.08525	3.22975	3.015	0.2145	0.9338	1.42825	0.09475	930.42475	22.14825	42.00925	
711	562	6548.5	6550.75	940	14.25	15.8733	842.2308	952.38475	8.728	7.122	1.6055	0.8163	1.13125	0.20825	1686.37775	31.782	53.05525	
804	801	3499	3501	127.75	3.75	5.24975	322.1383	314.985	5.4	5.098	0.30225	0.9443	0.97775	0.05475	1166.59075	19.0115	61.362	
804	803	2681.5	2680.75	128	3.75	4.27925	183.8108	256.75125	5.746	5.485	0.261	0.9545	1.397	0.0635	1340.49875	31.20725	42.956	
136	7002	1987	1988	0	1	1.16775	50.0645	70.06775	2.11525	2.015	0.10025	0.9525	1.39975	0.06625	993.758	23.18	42.87225	
236	7007	984.25	975.25	0	10.75	9.4215	51.0185	565.30175	34.64075	4.167	30.47425	0.121	11.08525	9.75175	979.55825	180.8965	5.4495	
247	7012	104.25	104	0	0.25	0.0745	3.3145	4.47275	2.5775	2.545	0.032	0.9878	1.35025	0.01675	104.1665	2.343	44.44275	
528	7005	1191.25	1192	0	1.5	1.971	77.83825	118.26025	5.9565	5.881	0.07575	0.9873	1.51925	0.01925	595.632	15.0825	39.49125	
603	7009	704.75	703.5	0	2.5	2.0135	88.01725	120.79575	10.29275	10	0.29275	0.9715	1.37225	0.03925	704.13875	16.10575	43.71875	
7001	223	497	496.75	490.25	1.5	0.61175	13.056	36.69725	3.82825	1.818	2.01025	0.4975	2.8075	1.47425	287.2315	13.45575	22.39275	
7006	250	1254.5	1250.75	624.5	4.75	1.777	46.85275	106.62	4.65425	2.712	1.942	0.6013	2.288	0.95475	691.00825	26.20825	27.073	
7011	131	657.25	657.5	0	0	0.66675	22.206	40.00475	3.27775	2.424	0.85375	0.7395	1.80275	0.46975	732.792	22.00275	33.28075	
7015	227	465	465.5	0	0	0.33875	11.5205	20.32325	2.24475	1.697	0.548	0.756	1.764	0.43025	543.118	15.96825	34.01925	
7016	219	820.75	820.75	591.5	0.75	0.8525	26.033	51.131	3.32525	2.258	1.068	0.6788	1.964	0.63075	307.5055	10.06625	30.555	
738	7018	1297.5	1295.5	0	3.75	1.239	49.10725	74.3465	3.4405	3.03	0.41025	0.8845	1.514	0.1805	1296.4325	32.7125	39.80675	
802	7026	1616.75	1617.75	0	1.25	2.1525	86.9945	129.14225	4.79025	4.303	0.48725	0.8983	1.4845	0.151	1617.35675	40.016	40.42075	
803	7025	2680.75	2681.5	0	1.75	2.74175	116.2658	164.49075	3.68175	3.47	0.212	0.9423	1.41475	0.08125	1340.354	31.605	42.40925	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
48	1	839.6	838.6	0	1.2	1.3088	54.9964	78.5308	5.6142	5.242	0.372	0.9338	1.4278	0.0944	839.2506	19.9732	42.0214	
8	20	9753.8	9744.4	1175.6	27.4	20.6112	1115.36	1236.674	7.6646	6.336	1.329	0.8724	1.1166	0.1936	1950.0336	36.0354	56.71	
137	8	9759.8	9753.8	1174.2	21.8	16.8694	916.5424	1012.162	6.0112	4.993	1.0182	0.8712	1.1112	0.1882	2033.3382	37.4246	56.6342	
1	563	838.6	838.4	0	0.2	0.5008	20.9624	30.049	2.1502	2	0.1502	0.9302	1.4334	0.1002	838.4922	20.0328	41.8586	
18	32	1103.6	1104.6	475.6	1	1.8388	79.466	110.3258	5.995	5.758	0.2372	0.9606	1.3884	0.055	552.0798	12.7746	43.2188	
18	37	513	513.6	0	0.2	0.4808	20.3148	28.8574	3.3738	3.167	0.2072	0.9386	1.4206	0.087	513.2192	12.1506	42.2388	
21	39	1797.8	1796.6	64.6	5	4.5646	199.1056	273.8792	9.1438	8.864	0.28	0.9696	1.3756	0.0422	898.5282	20.5994	43.6218	
32	36	1104.6	1106	40.4	0.8	1.7262	71.3636	103.5704	5.6238	5.167	0.4572	0.9188	1.4512	0.118	552.4922	13.3638	41.3468	
36	40	840	839	0	2	1.8192	76.975	109.1338	7.7978	7.333	0.4646	0.9406	1.4176	0.0844	839.727	19.8426	42.3214	
40	46	839	839.6	0	2	3	127.6606	179.999	12.866	12.167	0.6996	0.9458	1.41	0.0766	839.4126	19.7258	42.5548	
4	576	921.4	921.8	73.4	2	1.8722	77.4574	112.3382	7.3172	6.727	0.59	0.9196	1.45	0.117	549.6986	13.2874	41.3738	
46	48	839.6	839.6	0	1.8	2.0314	85.5642	121.8782	8.7084	8.152	0.5568	0.9362	1.4246	0.091	839.7394	19.9356	42.1242	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1659.6	1660	35.2	1.6	1.978	86.1378	118.6824	4.2894	4.152	0.138	0.9678	1.3776	0.0442	829.9406	19.0586	43.5534	
63	18	1616.6	1616.6	134	2.8	2.7172	111.4556	163.0356	6.0502	5.515	0.535	0.9122	1.4626	0.1294	808.3596	19.7076	41.0362	
68	56	1658.6	1659.6	9	1.4	1.4342	62.5326	86.046	3.111	3.015	0.096	0.9692	1.3758	0.0426	829.578	19.0252	43.61	
71	63	1618	1616.6	474	3.6	2.1196	89.1206	127.171	4.7188	4.409	0.3096	0.9344	1.427	0.0938	808.5182	19.2284	42.0478	
84	86	1660	1659	65	4.4	3.409	148.3304	204.5318	7.3952	7.152	0.2434	0.9674	1.3786	0.0454	829.6442	19.0666	43.5192	
104	71	940.6	941.4	7.6	1.2	1.1266	42.0728	67.601	4.309	3.576	0.7334	0.8302	1.607	0.2734	776.7304	20.8004	37.3582	
127	49	139	139.2	0	0.4	0.3152	14.0178	18.915	8.1732	8.076	0.0974	0.9884	1.3494	0.016	138.864	3.1228	44.4656	
127	68	1658.6	1658.6	25.2	2.4	1.5192	66.2908	91.1586	3.2968	3.197	0.0998	0.9698	1.375	0.0416	829.4182	19.0092	43.6386	
19	101	2249.4	2247.8	225.4	5.4	4.2776	183.1456	256.6768	6.8476	6.515	0.3326	0.9516	1.4012	0.068	1124.4296	26.2648	42.8166	
20	132	9744.4	9726.6	2646	50.8	33.387	1735.346	2003.2288	12.4428	9.871	2.5724	0.8378	1.1636	0.2404	1947.4236	37.4672	54.4546	
205	19	2251.6	2249.4	340.6	5	3.926	170.0366	235.5568	6.2808	6.045	0.2354	0.9624	1.3854	0.0518	1125.0546	25.9762	43.3136	
22	639	2088	2087.2	30.4	3.6	3.0718	150.2272	184.3078	5.297	5.297	0	1	1.2268	0	1043.685	21.341	48.9116	
237	21	1796.8	1797.8	52.8	3.6	3.1	135.8374	186.0024	6.2084	6.045	0.1628	0.974	1.3692	0.0358	898.7736	20.5114	43.8202	
309	71	676.8	676.6	0	3	1.8126	76.6424	108.7486	9.6422	9.061	0.5816	0.9396	1.419	0.0854	676.7082	16.0034	42.2866	
36	705	266	265.6	0	0.6	0.26	11.4266	15.6028	3.521	3.439	0.0816	0.977	1.3648	0.0316	265.7828	6.0486	43.961	
37	537	513.6	513.8	0	0.4	0.5964	26.1616	35.7928	4.1818	4.076	0.1062	0.9744	1.3682	0.0346	513.5058	11.7092	43.8576	
39	127	1796.6	1797.6	193.6	3	3.506	152.7816	210.3456	7.0242	6.803	0.2212	0.9684	1.3766	0.0434	734.6868	16.8582	43.584	
50	625	2252	2251.2	140	5.2	4.4508	191.4338	267.0414	7.1172	6.803	0.314	0.956	1.3948	0.0616	1125.5774	26.169	43.015	
50	628	2011	2010.6	82.8	3.8	3.1196	190.822	187.1798	5.5844	5.255	0.3292	0.941	0.981	0.0578	1005.5288	16.439	61.168	
51	650	2089	2088.2	43	2.8	2.513	156.2084	150.7628	4.332	4.143	0.1888	0.9566	0.9652	0.0422	1044.026	16.794	62.1676	
539	82	3733.4	3737	311.6	6.2	8.6654	366.464	519.9232	8.3514	7.848	0.5028	0.9396	1.4188	0.0852	1245.1282	29.4424	42.291	
545	51	2091.2	2089	96.8	6	4.2012	258.903	252.0738	7.2352	6.86	0.3752	0.9484	0.9736	0.0506	1045.1136	16.959	61.629	
545	59	735.6	735.6	0	0.8	0.7332	42.2032	43.988	3.588	3.588	0	1	1.0422	0	735.4196	12.7754	57.5804	
565	80	11050.2	11048.8	3430.2	72.2	81.9228	4843.623	4915.3652	26.696	24.283	2.413	0.9098	1.0148	0.0916	1619.6536	27.3938	59.126	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	735.6	736	0	0.8	0.679	33.586	40.7464	3.3222	3.3222	0	1	1.213	0	735.826	14.8784	49.4622	
594	76	2257	2253.2	120.2	10.2	7.4234	320.3156	445.4148	11.8508	11.364	0.4872	0.9588	1.3904	0.0572	1127.51	26.1308	43.1504	
598	81	3736.8	3735.4	71.4	3.2	2.9602	126.6614	177.615	2.8522	2.712	0.1402	0.9506	1.4022	0.069	1245.3854	29.1064	42.7884	
629	50	4262.2	4263	138.2	7	8.0236	451.2032	481.4234	6.7778	5.864	0.914	0.865	1.067	0.144	1420.6038	25.2626	56.2354	
638	97	4259	4258.8	518	9.2	8.0238	483.1528	481.4156	6.7818	6.283	0.4988	0.9264	0.9962	0.0732	1419.6148	23.575	60.2204	
650	22	2088.2	2088	0	1.8	1.6622	99.2558	99.7344	2.8658	2.8658	0	1	1.0046	0	1043.9642	17.4836	59.7156	
7008	4	921.8	921.4	228.4	1.2	1.0406	34.7902	62.43	3.6906	2.742	0.9482	0.743	1.7942	0.461	507.4398	15.1764	33.4384	
76	539	2253.2	2252	42.6	2.6	2.7794	119.4458	166.7706	4.4424	4.242	0.2	0.955	1.396	0.063	1126.2014	26.2068	42.976	
79	522	5329.8	5323.2	2453.8	22	20.294	1282.265	1217.6394	13.5104	13.133	0.3774	0.972	0.9496	0.0266	1351.9088	21.3962	63.1844	
80	602	11048.8	11055.6	2022.2	88.6	96.3058	5858.077	5778.3442	31.362	29.35	2.0128	0.936	0.9864	0.0634	1842.426	30.2892	60.829	
81	565	3735.4	3733	155.2	7.6	6.6162	283.6126	396.9806	6.3782	6.076	0.3024	0.9524	1.3996	0.0664	1244.7834	29.0394	42.8662	
82	202	3737	3737.2	102.2	3.4	4.0062	171.9806	240.365	3.859	3.682	0.1774	0.954	1.3976	0.0642	1245.6214	29.0152	42.931	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1659	1659.4	107.2	3.8	5.3534	232.6088	321.2184	11.611	11.212	0.3988	0.9658	1.3808	0.0474	829.848	19.0994	43.455	
97	637	4258.8	4260	343.4	5.2	5.4626	330.7552	327.7668	4.6168	4.301	0.3164	0.9316	0.9908	0.0678	1419.8268	23.45	60.549	
100	658	1966.4	1959.2	0	9.6	4.1786	101.475	250.7182	7.7254	4.653	3.072	0.6288	2.4904	0.9904	1962.5948	80.8178	25.1486	
101	691	2247.8	2246.2	287.6	5.8	4.7252	198.2974	283.5018	7.5698	7.061	0.5094	0.9328	1.4296	0.0964	1123.4014	26.7682	41.974	
106	107	1407.4	1407	95.6	1.8	1.8106	70.364	108.639	4.6322	4	0.6322	0.8636	1.544	0.2108	836.7606	21.532	38.8634	
107	590	3413.6	3412.2	367.8	4.8	3.9144	214.6164	234.8728	4.129	3.483	0.6462	0.8436	1.0946	0.1714	1137.726	20.7516	54.825	
109	594	3391	3391.6	65.8	5.6	5.654	240.8696	339.26	6.0018	5.682	0.32	0.9466	1.4084	0.0752	1130.4814	26.5376	42.5996	
111	524	4011.8	4019	300.2	11.2	14.4164	889.748	864.9832	12.9252	12.273	0.6524	0.9496	0.972	0.049	1338.424	21.6862	61.7186	
114	115	1132.6	1131.8	0	3	2.451	91.108	147.0522	7.7952	7.244	0.5506	0.9298	1.614	0.114	1131.8826	30.4486	37.176	
115	574	1131.8	1132.2	0	0.8	1.0646	40.3142	63.8816	3.3852	3.205	0.181	0.9466	1.5846	0.0846	1132.224	29.902	37.865	
123	705	1443.4	1444	0	4.8	4.4046	180.746	264.2632	10.9822	10.015	0.9672	0.9118	1.462	0.129	1443.7824	35.1818	41.0376	
124	711	920.8	920.6	0	0.8	1.1096	46.5538	66.5684	4.3382	4.045	0.2928	0.9328	1.4298	0.0966	920.6152	21.9402	41.9644	
130	401	5280.8	5245.4	92.4	45.6	38.774	564.2712	2326.4422	26.5292	6.432	20.0972	0.2428	4.1246	3.1246	1754.6244	120.5696	14.5662	
131	309	678.2	676.8	0	1.6	0.8836	37.719	53.0192	4.696	4.455	0.2416	0.9486	1.4056	0.0724	677.404	15.8696	42.686	
132	558	9726.6	9676	3614.6	80.6	37.7672	1987.914	2266.0436	14.1052	11.35	2.7558	0.8306	1.1474	0.2242	1940.1452	36.86	53.9826	
133	708	1709.4	1709	184.2	2.2	2.5478	108.7812	152.8652	5.3654	5.091	0.2744	0.949	1.4052	0.072	854.708	20.0182	42.7006	
136	146	1707.4	1706.2	8	3	2.6	107.347	155.985	5.482	5.03	0.452	0.9176	1.4532	0.1198	853.603	20.6728	41.2922	
146	158	2837.8	2838	1.6	2.2	2.1284	86.5342	127.7052	2.7	2.439	0.2606	0.9036	1.4758	0.1424	945.9646	23.2672	40.6572	
158	178	2838	2837	0	2.8	2.3352	97.803	140.1102	2.9628	2.758	0.2052	0.9308	1.4324	0.0992	945.7886	22.582	41.8834	
178	622	260.4	260.4	0	0.6	0.7186	31.601	43.1012	9.934	9.712	0.222	0.9776	1.364	0.0302	260.3014	5.917	43.9936	
178	661	2576.6	2577.2	216.8	3.8	3.7912	160.0866	227.4682	5.296	4.97	0.3264	0.9386	1.421	0.0876	1288.5016	30.514	42.2274	
189	205	2252.6	2251.6	165.8	3	2.4878	107.9192	149.269	3.9764	3.833	0.1432	0.9638	1.3832	0.0498	750.7414	17.3066	43.381	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
198	691	1145	1144.8	0	1.2	1.0296	44.2346	61.7792	3.2374	3.091	0.1464	0.9546	1.3966	0.0632	1144.9	26.6498	42.9646	
199	663	1563.8	1565.2	298.4	1.8	1.9156	85.642	114.9376	4.407	3.031	1.3756	0.688	1.3418	0.4188	782.3348	17.4992	44.7116	
200	201	1482.8	1483.2	0	1.4	1.5518	57.572	93.1118	3.7674	3.494	0.2734	0.9276	1.617	0.117	1482.8292	39.9698	37.099	
201	539	1483.2	1481.4	0	2	2.0826	76.9176	124.9636	5.0586	4.67	0.388	0.9232	1.6246	0.1246	1482.2062	40.1342	36.9316	
202	598	3737.2	3736.8	89.8	3.8	3.306	141.5696	198.3656	3.1842	3.03	0.1542	0.9516	1.4012	0.068	1245.8118	29.0936	42.8224	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	1258.2	1258.4	0	1.2	1.0356	45.2816	62.13	2.962	2.879	0.0836	0.972	1.3718	0.0386	1258.353	28.776	43.7332	
208	131	679	678.2	0	1.2	0.5906	25.4436	35.433	3.1332	3	0.1332	0.9574	1.3928	0.0592	678.494	15.748	43.0864	
209	583	1258.4	1261	0	2	3.3988	136.6622	203.9362	9.7156	8.682	1.0336	0.8936	1.492	0.1586	1259.2944	31.32	40.2126	
211	212	471.6	471.6	0	0.6	0.387	16.697	23.2314	2.9568	2.833	0.123	0.9584	1.3912	0.0582	471.4486	10.9326	43.1246	
212	214	471.6	471.6	0	0.4	0.3286	14.5576	19.7274	2.5102	2.47	0.0404	0.984	1.3552	0.0216	471.552	10.6506	44.2768	
213	214	364.8	365	0	0.2	0.3894	16.3826	23.3624	3.841	3.591	0.25	0.9352	1.4262	0.0928	364.9852	8.6748	42.072	
214	217	836.6	836.6	355.8	0.4	0.4464	19.4916	26.7792	1.9202	1.864	0.0568	0.9704	1.374	0.0404	418.3568	9.5796	43.6728	
215	216	2.6	2.6	0	0	0.0026	0.0624	0.1466	3.3998	1.322	2.0784	0.3898	2.3746	1.4516	2.6	0.1024	25.3418	
215	651	833.4	833.8	0	0.8	0.9498	39.6246	56.9902	4.102	3.803	0.299	0.9272	1.4382	0.1048	833.5332	19.9808	41.722	
217	215	836.6	836	6.8	0.8	0.4394	18.3746	26.374	1.892	1.758	0.1344	0.929	1.4354	0.102	418.182	10.0038	41.808	
221	614	3950.8	3953.8	211.4	7.8	8.1766	495.5236	490.589	7.4474	6.944	0.5034	0.9322	0.9902	0.0668	1317.4048	21.7378	60.6072	
226	622	1584.4	1586.2	0	1.8	2.6068	119.1756	156.406	5.9208	5.9208	0	1	1.3122	0	1585.0048	34.6694	45.7184	
228	701	2632.6	2631.8	1077	6	6.5922	275.1848	395.5196	9.0144	8.364	0.651	0.9276	1.4372	0.1036	1114.2446	26.6916	41.753	
231	233	2634	2632.6	182.4	3.4	2.3084	126.1824	138.5002	3.1554	3.1356	0.0192	0.994	1.0974	0.0066	877.7908	16.058	54.6714	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2632.6	2633.4	72.2	1.4	1.9462	95.7422	116.7796	2.6604	2.618	0.0422	0.9842	1.2194	0.0194	877.6378	17.8412	49.2112	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2633.4	2632.6	118.2	2.8	2.2126	95.7376	132.7478	3.0242	2.909	0.115	0.962	1.3864	0.0526	1316.3926	30.4214	43.2928	
235	207	1259	1258.2	0	1.2	0.6614	33.1394	39.6914	1.8918	1.8918	0	1	1.1978	0	629.4098	12.5642	50.0984	
238	109	3392.4	3391	190	6.8	7.4882	321.7884	449.2972	7.949	7.591	0.358	0.955	1.396	0.063	1130.4346	26.3064	42.9726	
346	557	8062.8	8065.8	4416.4	29.4	32.6854	1700.021	1961.138	14.59	11.675	2.915	0.8002	1.1536	0.2306	1880.9956	36.1652	52.0228	
351	556	8061.2	8061.6	2258	15.6	16.268	963.4446	976.0788	7.2644	6.619	0.6456	0.9112	1.0132	0.09	2015.4462	34.0312	59.225	
401	411	11551.8	11363.2	4226.2	272.4	236.468	4206.435	14188.054	74.3466	20.339	54.0072	0.2738	3.3742	2.4512	1909.0578	107.3192	17.8024	
402	130	5454.2	5280.8	383.4	233.4	174.519	2946.341	10471.119	116.4262	35.727	80.6992	0.3076	3.555	2.464	1799.2922	106.5762	16.9092	
411	657	11363.2	11305.6	4317.8	110.4	103.457	1976.879	6207.402	32.872	9.661	23.211	0.2942	3.1408	2.2178	1888.8744	98.851	19.1166	
49	7012	139.2	139.4	0	0.2	0.1708	7.5976	10.256	4.4184	4.364	0.055	0.9876	1.3502	0.0166	139.2862	3.1338	44.4442	
522	525	5323.2	5319.6	1318.6	30.2	27.0906	1622.639	1625.4434	18.3272	16.888	1.4392	0.9216	1.0014	0.0784	1330.3622	22.211	59.8966	
524	526	5678.4	5684.4	1786	23.8	24.5872	1453.447	1475.23	15.5798	14.171	1.4086	0.9096	1.0148	0.0916	1299.8306	21.9886	59.1262	
525	527	3877.6	3877.4	280.8	14.2	13.0374	811.3736	782.2482	12.106	11.591	0.5152	0.9576	0.9642	0.0412	1292.3234	20.7656	62.2338	
525	706	1442	1440.6	0	8.4	7.1394	296.4064	428.3692	17.8348	16.455	1.3806	0.9226	1.4452	0.112	1441.0924	34.7114	41.5172	
526	523	5684.4	5688.6	475.2	19.6	22.87	1413.824	1372.1894	14.48	13.773	0.7074	0.9514	0.9704	0.0474	1421.3608	22.9916	61.826	
527	537	3877.4	3875.6	1860.6	16.6	15.5182	965.9672	931.0822	14.4146	13.804	0.6102	0.9576	0.964	0.0408	1291.8714	20.7534	62.2478	
528	111	4007.6	4011.8	302.8	8	12.06	732.1336	723.59	10.8276	10.112	0.7156	0.934	0.9884	0.0654	1336.6754	22.018	60.7108	
529	541	4388.8	4386	629.2	11.4	10.2646	576.7408	615.885	8.4216	7.28	1.142	0.8646	1.0678	0.1448	1096.9708	19.5236	56.1872	
535	529	4389	4388.8	234.8	5.8	5.1676	314.998	310.0528	4.239	3.976	0.2636	0.9378	0.9844	0.0612	1097.0908	17.9978	60.9578	
536	615	5313.8	5300.2	1950.8	18.4	6.6876	227.158	401.2454	4.559	2.371	2.1882	0.5536	1.775	0.852	1326.7644	39.0592	35.9718	
537	535	4389.4	4389	740.2	7.8	7.7764	467.0832	466.5866	6.3796	5.895	0.4846	0.9242	0.9988	0.0756	1097.0632	18.265	60.065	
538	586	2901.4	2902.2	308.2	2.8	3.9982	251.148	239.8984	4.9604	4.794	0.1672	0.9664	0.9552	0.032	967.2222	15.3984	62.8128	
541	538	2901.2	2901.4	785.4	5	4.3718	274.7354	262.3086	5.425	5.245	0.1802	0.9668	0.9548	0.0318	967.0694	15.3888	62.8416	
541	596	1484.8	1483.2	0	2.6	1.6904	60.6962	101.4252	4.1014	3.682	0.4196	0.8978	1.671	0.171	1483.6874	41.3214	35.9086	
542	548	8645.4	8642.2	571.6	25.4	21.918	906.8848	1315.0876	9.1298	5.811	3.3188	0.6366	1.4502	0.5272	2160.8086	52.2238	41.387	
542	554	2634.8	2634.8	50.8	1	1.286	72.353	77.1568	1.757	1.648	0.109	0.9378	1.0664	0.0664	1317.3202	23.4132	56.2738	
544	536	3406.2	3388.2	513.2	24.4	9.3032	478.089	558.1926	9.8732	7.794	2.0792	0.8114	1.1694	0.2462	1132.4852	22.0372	52.7342	
547	566	1989.2	1979.8	0	12.4	4.2408	139.8208	254.4426	7.7714	4.612	3.16	0.6402	1.8382	0.7472	1984.5546	60.1906	35.2158	
547	711	6348.4	6350.6	268.2	6.6	9.9572	411.2734	597.4244	5.6474	3.587	2.0598	0.6474	1.453	0.53	2116.4942	51.2412	42.0876	
548	580	8642.2	8636.2	147	18	14.449	657.773	866.9472	6.0214	4.217	1.8044	0.7004	1.318	0.395	2159.8516	47.445	45.5296	
549	226	1585.6	1584.4	0	2.6	2.742	141.3982	164.5118	6.227	5.839	0.3882	0.9376	1.1636	0.0726	1585.1016	30.7366	51.5704	
549	595	5480.4	5480.8	172.4	7.6	8.039	478.479	482.3382	5.2808	4.836	0.4452	0.9154	1.0082	0.085	1826.731	30.691	59.5204	
553	351	8061.8	8061.2	2870.4	31.4	31.9386	1835.217	1916.3098	14.2628	12.608	1.6542	0.8842	1.0442	0.1212	1640.1402	28.5434	57.4624	
554	231	2634.8	2634	69	2.4	2.4334	137.7168	146.0062	3.3248	3.136	0.1884	0.9434	1.06	0.06	1317.2916	23.2764	56.6006	
556	346	8061.6	8062.8	1644.4	13.6	14.26	830.6084	855.5994	6.3678	5.706	0.6614	0.8962	1.03	0.107	2015.4466	34.6016	58.2504	
557	802	1725.4	1725.4	0	1.6	1.5608	65.0426	93.6502	3.2556	3.015	0.2404	0.9262	1.4396	0.1064	1725.7494	41.4134	41.678	
557	804	6340.4	6341	569.6	12	11.275	602.8564	676.4942	6.4016	5.266	1.1356	0.823	1.1222	0.1992	1585.1998	29.647	53.4806	
558	559	9676	9652.4	1591.6	59.4	34.7202	1826.429	2083.212	12.9998	10.469	2.5314	0.82	1.146	0.223	1932.5744	36.7382	53.304	
559	560	8394.4	8356.4	1189.6	76	42.2466	2162.07	2534.7926	18.2354	14.297	3.9382	0.7972	1.1772	0.2542	2093.8608	40.9138	51.8086	
559	561	1258	1259.2	0	1.8	1.9888	111.8164	119.3336	5.6868	5.33	0.357	0.9372	1.067	0.067	1258.8282	22.391	56.2332	
560	547	8356.4	8337.6	653.2	41.8	26.5448	1203.143	1592.6832	11.4974	7.983	3.5146	0.7152	1.3296	0.4066	2086.923	46.0434	46.4736	
561	577	1259.2	1259.8	0	4.2	3.966	220.987	237.9618	11.3294	10.523	0.8066	0.929	1.0766	0.0766	1260.0556	22.614	55.729	
562	564	7274.6	7275.4	1093	7.4	9.9916	473.966	599.489	4.941	3.608	1.333	0.7324	1.2642	0.341	1878.7836	39.606	47.5928	
563	600	7315.4	7316.4	516.4	8.4	9.5402	534.8316	572.4142	4.6936	4.049	0.6446	0.8628	1.07	0.1468	1828.9576	32.6246	56.0844	
564	563	6475.6	6477	358.4	14.2	16.2504	874.4804	975.0346	9.03	7.479	1.5508	0.829	1.1144	0.1912	2158.6056	40.1138	53.8922	
564	603	799.8	800	0	2.2	2.728	118.729	163.6858	12.2644	11.864	0.401	0.9676	1.3782	0.0452	800.6224	18.3962	43.5312	
566	570	1979.8	1973.6	0	7.8	2.8302	87.9744	169.8004	5.2074	3.205	2.0024	0.662	1.9498	0.7498	1976.6164	63.585	33.1054	
568	536	1935.2	1925.6	0	12.8	4.8882	127.2214	293.305	9.2146	5.273	3.9418	0.6126	2.3302	0.9968	1930.2594	74.1692	27.5748	
569	544	3413.4	3406.2	785.8	15.6	9.0012	557.1936	540.0568	9.4944	9.042	0.4524	0.953	0.9692	0.046	1137.658	18.3778	61.944	
570	100	1973.6	1966.4	0	8.8	3.2396	92.5328	194.392	5.976	3.758	2.2182	0.6672	2.1202	0.7872	1970.054	68.9778	30.0348	
574	146	1132.2	1131.6	0	1.2	1.1834	44.796	71.0004	3.7644	3.5622	0.2018	0.946	1.585	0.085	1131.6864	29.8948	37.8556	
576	124	921.8	920.8	0	3.8	4.6368	197.4368	278.1972	18.1082	17.136	0.972	0.9462	1.4088	0.0756	921.7212	21.6458	42.585	
577	235	1259.8	1259	0	1.4	0.7092	38.8814	42.5614	2.0274	2.0274	0	1	1.0946	0	629.7356	11.489	54.8154	
580	549	7072.4	7066	2183.2	31.6	29.4966	1565.238	1769.7996	15.0202	12.262	2.7582	0.8164	1.1308	0.2078	2062.5044	38.8676	53.0658	
580	581	1563.8	1563.4	105.4	1.4	1.4824	76.1076	88.9434	3.4126	3.186	0.2268	0.9336	1.1686	0.0776	781.8044	15.2278	51.3454	
581	582	1563.4	1563.4	50.4	1.8	1.7878	89.6972	107.2684	4.1174	4.1168	0.0006	0.9998	1.1958	0.0002	781.5208	15.5766	50.1758	
582	199	1563.4	1563.8	4.6	1	1.1842	54.7798	71.0538	2.7266	2.7266	0	1	1.2968	0	781.7238	16.8994	46.2618	
583	584	1261	1261	0	2	2.3212	107.009	139.2786	6.6256	4.699	1.9262	0.7096	1.3016	0.3784	1261.1736	27.3582	46.1028	
584	585	2826.2	2825.6	1466.2	2.8	3.1916	185.6906	191.4906	4.0662	3.64	0.4262	0.8954	1.0312	0.108	941.8322	16.1876	58.186	
585	620	2825.6	2825.6	265.2	4.6	3.9572	238.1426	237.4212	5.0412	4.668	0.3734	0.9258	0.997	0.0738	941.867	15.6502	60.187	
586	587	2902.2	2900.6	250.4	6.2	4.7744	298.3662	286.4586	5.9244	5.696	0.2286	0.9612	0.96	0.0368	967.08	15.4748	62.4926	
587	588	2900.6	2899.2	94	4.8	4.467	277.944	268.0102	5.5446	5.308	0.2368	0.9572	0.9644	0.0414	966.7628	15.5368	62.2216	
588	611	2899.2	2898.2	50.4	4.6	4.1158	246.4984	246.9492	5.112	4.71	0.4024	0.921	1.002	0.079	966.2294	16.1334	59.8876	
590	591	3412.2	3412.8	189.8	4	4.8856	294.0728	293.1226	5.1538	4.773	0.381	0.926	0.9968	0.0738	1137.5134	18.8974	60.1944	

RECOMMENDED ALTERNATIVE (RECORD OF DECISION) - 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
591	592	3412.8	3411.8	134.2	5.2	5.6366	352.2002	338.1976	5.947	5.717	0.2304	0.9612	0.96	0.037	1137.3804	18.2028	62.4844	
592	569	3411.8	3413.4	97.2	2.6	4.3964	276.572	263.7896	4.6388	4.49	0.1494	0.9678	0.9538	0.0308	1137.305	18.079	62.9074	
594	114	1134.6	1132.6	509.2	3.2	2.7456	101.7706	164.7282	8.7182	8.08	0.6388	0.9268	1.6186	0.1186	569.2264	15.356	37.071	
595	553	5480.8	5482.2	156.2	6.2	8.2714	500.4048	496.2818	5.432	5.056	0.376	0.9308	0.992	0.0688	1827.2044	30.2026	60.4986	
596	200	1483.2	1482.8	0	2.4	1.928	70.7848	115.6788	4.6796	4.295	0.3844	0.9178	1.6342	0.1342	1483.109	40.3958	36.7152	
599	528	5282.4	5246.4	901.8	50.2	21.1578	637.3342	1269.4656	14.5202	6.703	7.8172	0.493	1.9998	1.0766	1082.3816	35.9322	32.063	
600	565	7316.4	7317.2	362	13.6	15.1378	899.3598	908.257	7.447	6.808	0.6394	0.9142	1.01	0.087	1829.206	30.7886	59.4244	
601	401	6500.4	6306.4	808.8	297.6	206.919	5976.147	12415.135	115.8234	51.43	64.3934	0.4452	2.0788	1.1558	2145.2214	74.2764	28.955	
610	636	1857	1856.6	64.8	2.8	3.2368	202.9012	194.215	6.2764	6.052	0.2236	0.9644	0.9574	0.034	928.3518	14.8102	62.6832	
611	156	1041.4	1041.8	0	1.2	1.4842	64.6924	89.044	5.1302	4.97	0.1606	0.9688	1.3764	0.043	1041.3956	23.8898	43.5924	
611	612	1856.8	1857.6	38.4	1.8	2.0282	127.3392	121.7028	3.9316	3.797	0.1346	0.9658	0.9558	0.0328	928.6608	14.7924	62.7774	
612	610	1857.6	1857	37.2	2	1.9238	120.6744	115.4256	3.7282	3.598	0.1304	0.965	0.9564	0.0334	928.8068	14.8068	62.7272	
614	644	3953.8	3955.4	132.8	7.8	7.6556	473.268	459.3254	6.9702	6.629	0.3406	0.951	0.9706	0.0476	1317.9612	21.319	61.8226	
615	599	5300.2	5282.4	586	22.2	8.632	298.5766	517.9078	5.9032	3.126	2.7772	0.5672	1.7434	0.8202	1322.5536	38.2348	36.8576	
620	545	2825.6	2826.8	29.6	3.8	3.4738	208.7386	208.4296	4.4246	4.091	0.3338	0.9248	0.9982	0.075	942	15.6768	60.1034	
622	188	1846.6	1846.8	339.2	2.2	2.6156	111.1926	156.9442	5.1002	4.818	0.282	0.9444	1.4114	0.078	923.1092	21.7156	42.5104	
625	189	2251.2	2252.6	40.8	1.4	2.4884	107.9044	149.2966	3.9776	3.833	0.1446	0.9638	1.3836	0.0502	750.6392	17.3098	43.3672	
626	627	2010.2	2009	83.4	4.6	3.0292	191.1172	181.7496	5.4248	5.266	0.1592	0.9708	0.9508	0.0278	1005.0782	15.9302	63.0926	
627	107	2009	2006.6	151	7	6.1504	387.1616	369.0224	11.026	10.678	0.3476	0.9682	0.953	0.0298	1004.0346	15.9498	62.9502	
628	626	2010.6	2010.2	32.8	2.4	2.3544	147.7566	141.2642	4.2152	4.07	0.1452	0.9654	0.956	0.033	1005.3538	16.0196	62.7582	
631	568	1944.2	1935.2	0	12	5.0198	134.0834	301.1966	9.4128	5.53	3.8826	0.6274	2.2694	0.936	1939.6162	72.6174	28.226	
636	639	1856.6	1856.2	45	2.4	2.414	151.1558	144.838	4.682	4.51	0.1716	0.9634	0.9582	0.0352	928.026	14.8206	62.618	
637	629	4260	4262.2	287	5.2	7.2238	439.8546	433.4174	6.1024	5.717	0.3856	0.937	0.9854	0.0622	1420.4484	23.3276	60.893	
638	738	1049.6	1049.8	0	2	1.6102	68.0014	96.6124	5.5208	5.182	0.3388	0.9386	1.4206	0.0872	1049.8452	24.8592	42.24	
639	221	3943.4	3950.8	1905.2	9	11.5284	642.307	691.694	10.5108	9.01	1.5	0.8572	1.0768	0.1538	992.7934	17.8188	55.7238	
644	645	3955.4	3955.2	162.4	7	8.5162	526.6738	510.9728	7.7502	7.374	0.3762	0.9516	0.9702	0.0472	1318.5574	21.3208	61.844	
645	649	4788.4	4789.6	1058.4	34	35.9518	2209.188	2157.1094	27.0182	25.542	1.4762	0.9452	0.9768	0.0534	1197.5886	19.4892	61.4484	
647	638	5307.8	5308.6	1263.4	10	10.923	648.4694	655.3798	7.4078	6.766	0.642	0.9134	1.0106	0.0876	1327.1	22.3542	59.3676	
648	647	5302.8	5307.8	2997	30.8	31.1818	1951.4	1870.9132	20.9512	20.171	0.7796	0.9628	0.9588	0.0358	1339.4946	21.4044	62.5812	
651	645	833.8	833.2	0	1.6	1.3218	55.1158	79.3012	5.7062	5.288	0.4182	0.9268	1.4388	0.1056	833.8424	19.9958	41.702	
657	542	11305.6	11280.2	9939.2	170	165.241	4781.163	9914.4778	52.6912	23.455	29.2366	0.445	2.0736	1.1506	1881.6742	65.0324	28.9408	
658	659	1959.2	1953.4	0	7.4	3.1516	74.8416	189.0994	5.8464	3.443	2.4034	0.6144	2.547	1.047	1956.2534	82.3798	24.58	
659	631	1953.4	1944.2	0	12.4	4.9066	126.6088	294.399	9.1456	5.197	3.9486	0.5992	2.3464	1.0132	1948.964	75.5312	26.9526	
661	553	2577.2	2579.6	186	4.4	4.638	212.4458	278.28	6.4748	5.932	0.5432	0.916	1.3098	0.1098	1289.3274	28.148	45.8062	
663	584	1565.2	1565.2	89.2	2.4	2.015	110.2766	120.9018	4.634	3.902	0.732	0.842	1.0962	0.1732	782.6082	14.3002	54.7322	
691	238	3391	3392.4	1184.8	6.6	7.2318	309.6258	433.9028	7.6758	7.303	0.3728	0.9512	1.4014	0.068	1130.5838	26.4064	42.8154	
701	236	835.6	835.4	0	0.4	0.8982	39.0882	53.883	3.8688	3.742	0.1264	0.9672	1.3784	0.0452	835.574	19.1972	43.5334	
701	237	1796.2	1796.8	31.4	1.2	1.8412	80.9858	110.4664	3.6888	3.606	0.0828	0.9776	1.364	0.0308	898.3282	20.4226	43.989	
705	133	1709.6	1709.4	933.2	2.6	3.3528	146.0084	201.1686	7.061	6.833	0.228	0.9678	1.3776	0.0444	854.6844	19.6262	43.5488	
706	123	1440.6	1443.4	0	5.6	7.6656	316.8822	459.9494	19.1336	17.576	1.5576	0.9188	1.4514	0.1182	1442.3608	34.8928	41.3366	
708	136	1709	1707.4	146	4.8	4.2714	176.6056	256.2854	9.0038	8.273	0.7308	0.919	1.451	0.1178	853.9166	20.6532	41.3478	
711	562	7271.2	7274.6	1618.4	22.4	27.8724	1021.966	1672.3424	13.7888	7.783	6.0056	0.5686	1.6352	0.7122	1909.4062	52.0758	36.9686	
804	801	3611.8	3613	155	5.2	5.5118	332.517	330.7096	5.4928	5.098	0.395	0.9282	0.9946	0.0716	1204.177	19.9606	60.329	
804	803	2729.2	2729.2	108.8	2	2.5378	139.0478	152.2688	3.3474	3.057	0.2906	0.9134	1.0952	0.0952	1364.6324	24.9064	54.7946	
156	7010	1041.8	1041.8	0	1	1.8292	76.1458	109.7622	6.323	5.848	0.474	0.925	1.4416	0.108	1041.5814	25.0232	41.6244	
188	7002	1846.8	1847.2	0	1	1.3238	57.3742	79.423	2.5798	2.485	0.095	0.963	1.3844	0.0508	923.5854	21.3086	43.3448	
192	7007	736	735.6	0	0.4	0.5014	22.0184	30.0938	2.4538	2.394	0.06	0.9756	1.3668	0.0336	735.8064	16.7608	43.9022	
236	7013	835.4	835.2	0	0.8	0.9606	40.3404	57.6428	4.1402	3.864	0.2764	0.9334	1.4286	0.0952	835.2818	19.8926	42.0002	
528	7005	1238.8	1211	0	30.8	10.4168	80.1024	625.0024	30.971	5.881	25.09	0.2146	7.8998	6.3998	612.9596	79.7104	8.5854	
603	7009	800	800.4	0	1.8	2.3046	100.0104	138.2614	10.3678	10	0.3678	0.9646	1.3824	0.049	800.083	18.4348	43.404	
7001	106	1407.8	1407.4	1139.4	2.4	2.4934	78.4286	149.6068	5.9826	4.182	1.8006	0.6992	1.9074	0.5744	750.1878	23.8502	31.4564	
7004	198	1145.2	1145	0	1.6	1.2062	45.6032	72.3574	3.4614	2.909	0.5524	0.8404	1.5864	0.2534	1254.0894	33.1638	37.818	
7006	104	939.2	940.6	454.6	1.4	1.5208	47.0978	91.255	5.415	3.727	1.6878	0.6886	1.937	0.6036	505.439	16.3222	30.9826	
7011	208	679.4	679	0	0.8	0.7472	28.511	44.8352	3.6276	3.076	0.552	0.8482	1.5726	0.2394	741.568	19.4362	38.1568	
7015	211	471.8	471.6	0	0.2	0.4422	15.7912	26.521	3.0154	2.394	0.6214	0.794	1.6794	0.346	527.7106	14.7712	35.7274	
7016	213	364.6	364.8	0	0	0.2494	8.5242	14.961	2.0946	1.591	0.5036	0.7596	1.7556	0.422	428.6554	12.5386	34.1824	
738	7018	1049.8	1048.8	0	2	0.978	40.948	58.6648	3.353	3.121	0.2318	0.931	1.4322	0.0992	1049.5432	25.0606	41.8906	
802	7026	1725.4	1726.4	0	1	2.1764	86.958	130.5692	4.5382	4.03	0.508	0.8882	1.5016	0.168	1726.0812	43.1956	39.9662	
803	7025	2729.2	2729.8	0	2.2	3.0646	166.4882	183.882	4.0412	3.992	0.0494	0.9878	1.1044	0.0134	1364.9968	25.1266	54.3266	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln- Mile	Speed (mph)	Link Type
48	1	857.8	857.6	0	1	1.344	56.1916	80.6412	5.6428	5.242	0.4004	0.9292	1.435	0.102	857.489	20.5098	41.8084	
8	20	9539.8	9506.2	1106.6	52.4	24.0696	1089.334	1444.1842	9.3002	6.336	2.9648	0.7732	1.355	0.4318	1904.5302	42.0822	50.2584	
137	8	9564.6	9539.8	1109.4	39.8	19.3372	897.1748	1160.2264	7.1282	4.993	2.1352	0.78	1.3178	0.3948	1990.3706	42.899	50.7038	
1	563	857.6	857.6	0	0.2	0.5142	21.4418	30.8526	2.1584	2	0.1584	0.9268	1.4388	0.1058	857.6722	20.5684	41.6982	
18	32	1110.4	1110.6	470	1.8	1.8516	79.9118	111.095	6.0038	5.758	0.246	0.959	1.3902	0.057	555.1766	12.8636	43.1572	
18	37	512.6	513.2	0	0	0.483	20.3068	28.9702	3.3882	3.167	0.2216	0.9346	1.4264	0.0934	513.013	12.1976	42.0594	
21	39	1823.8	1827	66.4	3.4	4.6412	202.2336	278.4826	9.1542	8.864	0.2908	0.9684	1.377	0.0438	912.6426	20.9458	43.571	
32	36	1110.6	1111.8	43.6	1.6	1.737	71.7712	104.2306	5.6276	5.167	0.461	0.9184	1.4522	0.1188	555.648	13.449	41.3292	
36	40	856	856.4	0	1.4	1.8536	78.499	111.2262	7.7932	7.333	0.4602	0.9408	1.4172	0.0836	856.3554	20.223	42.3468	
40	46	856.4	857.2	0	2.6	3.068	130.3156	184.0844	12.8904	12.167	0.7238	0.9436	1.4126	0.0794	856.8696	20.1736	42.4746	
4	576	911	911.2	74.8	1.6	1.8578	76.6354	111.4802	7.3388	6.727	0.6114	0.9168	1.4546	0.1212	543.863	13.1858	41.2544	
46	48	857.2	857.8	0	1.4	2.0788	87.3754	124.7298	8.7274	8.152	0.5758	0.934	1.4276	0.0942	857.5158	20.4016	42.0322	
56	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
56	84	1671	1671.2	33.8	1.4	1.9946	86.7312	119.6824	4.2966	4.152	0.1452	0.9662	1.3798	0.0466	835.656	19.2192	43.4792	
63	18	1621	1623	126.6	2	2.7414	111.8036	164.481	6.0858	5.515	0.5708	0.9062	1.4712	0.1382	810.8818	19.882	40.7862	
68	56	1672	1671	14.4	2.6	1.4474	62.9892	86.8326	3.1176	3.015	0.1024	0.9672	1.3784	0.0454	835.6386	19.1992	43.5226	
71	63	1620.2	1621	484.2	1.8	2.1278	89.3192	127.6738	4.7268	4.409	0.3178	0.9328	1.4296	0.0962	810.319	19.3046	41.9774	
84	86	1671.2	1671.2	65.2	2.6	3.4406	149.4452	206.428	7.4092	7.152	0.2574	0.9652	1.3812	0.048	835.8794	19.2434	43.4358	
104	71	941.8	942.4	6	1	1.1256	42.1034	67.5388	4.302	3.576	0.726	0.8314	1.604	0.2706	777.2924	20.781	37.4196	
127	49	155.8	155	0	1	0.3514	15.6934	21.0796	8.136	8.076	0.0602	0.9926	1.3432	0.0102	155.459	3.4802	44.6672	
127	68	1671	1672	23.6	1.4	1.5338	66.8136	92.0242	3.3026	3.197	0.1056	0.9682	1.3776	0.044	835.9642	19.1896	43.56	
19	101	2256.8	2255.4	202.6	4.6	4.2878	183.6926	257.259	6.8434	6.515	0.3282	0.952	1.4006	0.0672	1127.7874	26.3242	42.8424	
20	132	9506.2	9469.2	2622.8	67.4	38.8152	1690.77	2328.8974	15.0824	9.871	5.2116	0.7414	1.4104	0.4872	1897.399	43.5586	48.1926	
205	19	2258.2	2256.8	473.6	4	3.8886	170.651	233.316	6.1988	6.045	0.1536	0.975	1.3672	0.0342	1129.1186	25.729	43.8848	
22	639	2053.6	2055.6	161.6	4.8	5.2066	219.4274	312.4096	9.123	8.545	0.5774	0.9368	1.4234	0.09	1027.1066	24.3724	42.1542	
237	21	1824.4	1823.8	55.2	3.6	3.15	137.8538	189.0022	6.2166	6.045	0.1712	0.9726	1.371	0.038	912.1162	20.8422	43.7614	
309	71	678.4	677.8	0	1.2	1.8164	76.8186	108.976	9.64	9.061	0.5796	0.94	1.4184	0.0852	678.2642	16.0366	42.2952	
36	705	255.8	256.2	0	0.2	0.2516	11.013	15.092	3.5342	3.439	0.0944	0.9732	1.37	0.0368	256.167	5.8506	43.799	
37	150	513.2	513.8	0	0.6	0.773	33.846	46.3874	5.4198	5.273	0.1468	0.9728	1.3706	0.037	513.5254	11.73	43.7826	
39	127	1827	1826.8	209.6	3.6	3.5674	155.3166	214.0458	7.0318	6.803	0.2288	0.9676	1.378	0.045	746.8782	17.1548	43.535	
50	625	2255	2256.4	408.4	3.8	4.5792	191.8236	274.7526	7.3076	6.803	0.5046	0.931	1.4322	0.0988	1127.8722	26.9246	41.8956	
50	628	1975.8	1977	178.8	2.6	3.3098	187.5438	198.5882	6.0286	5.255	0.7734	0.872	1.059	0.1358	658.8358	11.6274	56.6636	
51	650	2054.2	2053.4	22.4	2	1.6882	105.0278	101.2938	2.9588	2.832	0.1268	0.9572	0.9642	0.0412	1026.938	16.507	62.2208	
539	82	3716.2	3715.6	313.8	8.4	8.6186	364.5606	517.1178	8.3494	7.848	0.501	0.9402	1.4184	0.0852	1238.6612	29.2832	42.2994	
545	51	2054.6	2054.2	233.2	7.6	7.9848	487.8476	479.0868	13.992	13.154	0.8382	0.94	0.9818	0.0586	1027.0474	16.8098	61.1094	
545	59	742	742	0	0.2	0.5972	33.5834	35.8288	2.897	2.507	0.39	0.8656	1.0666	0.1434	741.9264	13.1922	56.258	
565	80	10866.6	10869.2	3399	77	80.679	4764.356	4840.7466	26.728	24.283	2.445	0.9084	1.0162	0.093	1593.1474	26.9784	59.0544	
59	191	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
59	192	742	742.2	0	0.4	0.6878	34.7138	41.2692	3.3362	3.3362	0	1	1.1888	0	742.0624	14.7034	50.4808	
594	76	2249.4	2245.2	169.2	12.2	9.2006	396.3532	552.0274	14.7348	14.106	0.6288	0.9572	1.3928	0.0596	1123.9234	26.0892	43.08	
598	81	3717.8	3718.6	74.2	3	2.9448	126.0782	176.699	2.8506	2.712	0.1384	0.9514	1.4014	0.068	1239.6524	28.9562	42.8118	
629	50	4229	4230.8	955.6	8.4	10.5762	447.7848	634.5652	9.0016	5.864	3.1382	0.6522	1.4172	0.4942	1057.3812	24.9738	42.399	
638	97	4226.4	4229.2	237.6	7	7.739	479.6262	464.3342	6.5898	6.283	0.3064	0.9534	0.9682	0.0448	1335.6676	21.5512	61.976	
650	22	2053.4	2053.6	3.6	3.4	2.9094	164.901	174.554	5.0994	5.0994	0	1	1.0586	0	1026.7434	18.114	56.6906	
7008	4	912	911	235.8	1.8	1.0312	34.4072	61.8614	3.6978	2.742	0.955	0.7416	1.7976	0.4646	501.848	15.0382	33.376	
76	539	2245.2	2244.8	50.6	3.8	2.7742	119.0736	166.4508	4.448	4.242	0.2052	0.954	1.398	0.0646	1122.6942	26.1566	42.9224	
79	522	5328	5325.2	2457	23.2	20.2864	1281.875	1217.1808	13.5092	13.133	0.3762	0.9722	0.9498	0.0268	1351.4974	21.388	63.189	
80	602	10869.2	10875.8	1972.8	89.6	94.7232	5761.648	5683.4012	31.3628	29.35	2.0132	0.9358	0.9862	0.0632	1812.098	29.7916	60.8278	
81	565	3718.6	3718.6	167.4	6.2	6.5868	282.4024	395.2052	6.377	6.076	0.301	0.9526	1.3994	0.066	1239.4724	28.9094	42.8748	
82	202	3715.6	3717	98.6	4.6	3.9822	171.0466	238.9398	3.8576	3.682	0.1756	0.9544	1.3968	0.0638	1238.8572	28.8434	42.9514	
82	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
86	524	1671.2	1668	99.8	6.4	5.3926	233.984	323.55	11.6288	11.212	0.4168	0.9642	1.3828	0.0496	834.7534	19.238	43.3878	
97	637	4229.2	4227.4	293.4	7.2	5.278	328.329	316.6924	4.494	4.301	0.1932	0.957	0.9644	0.0414	1057.0596	16.9934	62.2046	
100	658	2000.2	1995.8	0	7	4.358	103.2988	261.4872	8.2202	4.653	3.5668	0.6374	2.6496	1.1496	1997.8696	84.289	25.4822	
101	691	3358.4	3358	1080.6	5.6	6.8976	296.3838	413.8596	7.3944	7.061	0.3336	0.9548	1.3966	0.063	1119.3886	26.051	42.969	
106	107	1509	1509.4	194	1.4	2.3944	88.8974	143.6656	5.7112	4.712	0.999	0.8252	1.616	0.2828	955.9628	25.7486	37.1298	
107	590	3486.6	3487	1577.8	3.4	4.1634	219.24	249.7978	4.2986	3.483	0.816	0.8102	1.1394	0.2164	871.677	16.5532	52.6608	
109	594	3359.8	3362.8	77	5.2	7.1628	304.9586	429.7652	7.671	7.258	0.4132	0.946	1.4094	0.0758	1120.5162	26.3182	42.5756	
111	524	4106.6	4110	314.6	12.4	14.757	910.1624	885.4018	12.9354	12.273	0.6628	0.9486	0.9728	0.0498	1369.133	22.198	61.6712	
114	115	1113	1114.2	199.8	0.8	2.1192	81.3986	127.1512	6.8518	6.58	0.2724	0.96	1.562	0.062	556.715	14.494	38.41	
115	574	1114.2	1112.8	378.4	4.8	2.9214	105.861	175.2842	9.4454	8.557	0.8886	0.9058	1.6558	0.1558	575.0464	15.8692	36.2376	
123	705	1444.8	1445.6	0	4	4.4046	180.872	264.2812	10.9756	10.015	0.9604	0.9124	1.4612	0.1276	1444.7866	35.1842	41.063	
124	711	910.6	910.4	0	0.6	1.0966	46.0346	65.7916	4.3358	4.045	0.2906	0.9332	1.429	0.0958	910.3464	21.684	41.9858	
130	401	5225.6	5192.2	86.2	45.6	41.0048	558.3624	2460.2886	28.367	6.432	21.9352	0.2276	4.4106	3.4106	1736.2512	127.5062	13.6474	
131	309	678.6	678.4	0	0.6	0.8826	37.7832	52.9592	4.6828	4.455	0.228	0.9512	1.4016	0.0682	678.5556	15.8518	42.808	
132	558	9469.2	9445	3657.2	59.8	40.8346	1937.653	2450.0816	15.8198	11.35	4.4702	0.7656	1.2868	0.3638	1891.0924	39.8532	49.7648	
133	708	1701.6	1700.6	356.6	3	2.4524	108.2752	147.149	5.1892	5.091	0.0982	0.9812	1.359	0.0258	850.7336	19.2696	44.149	
136	146	1702.6	1702.4	113.2	3	2.599	107.0478	155.9426	5.4956	5.03	0.4654	0.9156	1.4568	0.1234	851.2228	20.6672	41.1902	
146	158	1702.4	1701.6	41.4	4	4.07	166.3432	244.2154	8.6084	7.818	0.79	0.9084	1.4682	0.1348	851.0588	20.8246	40.8718	
150	151	513.8	514	0	0.6	1.0032	43.6992	60.1848	7.0266	6.803	0.2236	0.9682	1.377	0.0438	513.8774	11.7954	43.5694	
151	155	514	513.6	0	0.4	0.6526	28.2234	39.164	4.5728	4.394	0.1788	0.961	1.3876	0.054	513.8598	11.8842	43.2446	
155	157	513.6	513.8	0	0.4	1.1852	51.0624	71.1004	8.3062	7.955	0.3516	0.9578	1.392	0.0588	513.5414	11.9178	43.097	
157	194	513.8	513.4	0	1	0.6752	28.9756	40.511	4.7342	4.515	0.2188	0.9538	1.398	0.0646	513.395	11.963	42.921	
158	178	2815.6	2815.4	0	2.8	2.7296	111.4532	163.7826	3.49	3.167	0.3234	0.9072	1.4696	0.1362	938.5522	22.9868	40.8304	
178	622	246	246	0	0	0.2714	12.0206	16.271	3.9686	3.909	0.0594	0.9852	1.3538	0.02	246	5.55	44.3286	
178	661	2569.4	2570.2	119.6	1.2	1.747	73.0076	104.8262	2.4472	2.273	0.175	0.9286	1.436	0.1024	1284.935	30.749	41.7882	
189	205	2257.8	2258.2	128.4	2	2.4852	108.1816	149.1156	3.963	3.833	0.1296	0.9674	1.3784	0.045	752.5672	17.2886	43.5292	
190	577	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
194	197	513.4	513.4	0	0.6	1.2736	54.4394	76.4236	8.9326	8.485	0.4478	0.9502	1.404	0.0702	513.285	12.0092	42.7464	
197	586	513.4	513.6	0	0	0.8398	35.785	50.3884	5.8878	5.576	0.312	0.9472	1.4078	0.0746	513.4414	12.0492	42.6166	
198	101	1102.8	1103	0	1.6	1.678	71.865	100.6866	5.4768	5.212	0.2648	0.9516	1.401	0.0678	1103.0476	25.757	42.8262	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
199	663	1566.8	1565.8	296.2	2	1.916	85.7368	114.9618	4.4032	3.031	1.372	0.6882	1.3408	0.4178	783.2004	17.5028	44.7486	
200	201	1471.8	1471.6	0	2	1.541	57.1424	92.4558	3.769	3.494	0.275	0.9272	1.6178	0.1178	1471.7682	39.6882	37.0836	
201	539	1471.6	1471.4	0	2.2	2.068	76.3592	124.0762	5.0592	4.67	0.3888	0.923	1.6248	0.1248	1471.449	39.8494	36.9268	
202	598	3717	3717.8	96	3.4	3.2866	140.8118	197.194	3.1826	3.03	0.1526	0.9522	1.4004	0.067	1239.1438	28.922	42.8448	
204	625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
205	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
207	209	1225.6	1226.6	0	0.2	1.004	44.1162	60.252	2.9488	2.879	0.07	0.9764	1.3658	0.0326	1225.9592	27.9062	43.9312	
208	131	678.4	678.6	0	0.6	0.587	25.45	35.227	3.1144	3	0.1144	0.9634	1.3842	0.0508	678.6632	15.6564	43.3496	
209	583	1226.6	1227.6	0	2.2	3.2872	133.1398	197.2218	9.6436	8.682	0.9618	0.9002	1.4812	0.1476	1226.838	30.289	40.5118	
211	212	471.2	471.4	0	0	0.3866	16.689	23.1934	2.9532	2.833	0.1198	0.9594	1.3898	0.0564	471.2194	10.9146	43.1738	
212	214	471.4	471.6	0	0.2	0.3282	14.5532	19.6906	2.506	2.47	0.0364	0.9858	1.353	0.0196	471.4174	10.6308	44.347	
213	214	363.2	363.2	0	0	0.3868	16.3028	23.1944	3.832	3.591	0.241	0.9372	1.4228	0.0896	363.2	8.6122	42.1706	
214	217	834.8	834.8	355.8	0.2	0.4442	19.4502	26.6664	1.9162	1.864	0.0528	0.9724	1.3708	0.0378	417.4684	9.5392	43.7646	
215	216	1.8	1.8	0	0	0.0018	0.0432	0.0984	3.216	1.322	1.8944	0.4116	2.246	1.323	1.8	0.0688	26.7582	
215	651	833.2	832.2	0	1.2	0.9392	39.5894	56.3472	4.0594	3.803	0.2564	0.937	1.4232	0.0898	832.7962	19.7552	42.1622	
217	215	834.8	835	5.6	0	0.4364	18.3416	26.1712	1.8806	1.758	0.1232	0.9346	1.4268	0.0936	417.4286	9.927	42.0568	
221	614	3874.8	3875.4	554.2	6.8	8.809	485.8818	528.531	8.182	6.944	1.238	0.8488	1.0874	0.1644	968.8278	17.5644	55.1712	
226	622	1645	1646	0	2.8	2.7062	123.698	162.3674	5.9214	5.9214	0	1	1.3124	0	1645.1518	35.9908	45.7142	
228	701	2642.4	2644.8	1068.6	7.4	6.6142	276.4222	396.84	9.0044	8.364	0.6412	0.929	1.4354	0.1022	1119.2556	26.7804	41.7972	
231	233	2643.4	2642.8	180	2.8	2.3104	126.651	138.6272	3.1466	3.1352	0.011	0.9966	1.0944	0.004	881.049	16.0726	54.822	
232	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
233	234	2642.8	2642.4	68	2.2	1.9408	96.0916	116.4456	2.6438	2.618	0.0256	0.9902	1.2116	0.0116	880.8372	17.7904	49.5188	
234	182	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
234	228	2642.4	2642.4	109	2.2	2.2038	96.098	132.2354	3.0018	2.909	0.0926	0.9692	1.3758	0.0424	1321.3464	30.304	43.6136	
235	207	1225.6	1225.6	0	0.2	0.6418	32.2668	38.511	1.8854	1.8854	0	1	1.1932	0	612.8396	12.1904	50.2694	
238	109	3358.8	3359.8	101.2	4.8	5.2832	227.1398	316.9928	5.6616	5.409	0.2526	0.9552	1.3958	0.062	1119.7926	26.0458	42.993	
346	557	7986.2	7983	4319.8	37.4	31.8872	1682.907	1913.2326	14.3754	11.675	2.7006	0.8124	1.1368	0.2136	1862.0596	35.2816	52.8058	
351	556	7991	7989.2	2260.8	18.2	16.08	955.0274	964.7878	7.2434	6.619	0.6244	0.9138	1.0102	0.087	1997.8384	33.6374	59.3962	
401	411	11505.8	11323	4205	273	245.24	4187.598	14714.436	77.4384	20.339	57.0994	0.263	3.5144	2.5914	1900.5088	111.3006	17.0858	
402	130	5400.6	5225.6	359.6	232.6	184.825	2915.373	11089.516	124.6744	35.727	88.947	0.2872	3.8068	2.716	1780.3802	112.8704	15.8106	
411	657	11323	11287.8	4301.2	102	105.566	1971.072	6333.9424	33.6368	9.661	23.9762	0.2872	3.214	2.291	1883.326	100.8662	18.6754	
49	7012	155	155.4	0	0.2	0.1898	8.4676	11.3812	4.3988	4.364	0.0354	0.9922	1.3442	0.0108	155.2402	3.4778	44.639	
522	525	5325.2	5314.8	1357.8	33.6	27.0996	1622.254	1625.9746	18.3376	16.888	1.4494	0.921	1.002	0.079	1330.0462	22.2182	59.8634	
524	526	5778	5781.4	1748.8	19.6	25.0354	1478.679	1502.1158	15.5942	14.171	1.4228	0.909	1.016	0.0928	1322.3962	22.3894	59.071	
525	527	3871.4	3866.6	266	16	13.0118	809.6792	780.7064	12.1076	11.591	0.5166	0.9574	0.9642	0.0412	1289.6244	20.7248	62.2264	
525	706	1443.4	1443.8	0	6.8	7.1276	296.9826	427.6474	17.7712	16.455	1.3164	0.926	1.44	0.1068	1443.893	34.6528	41.6674	
526	523	5781.4	5782.4	471.8	20.4	23.2788	1437.941	1396.7336	14.492	13.773	0.7194	0.9504	0.9714	0.0484	1445.6072	23.403	61.7736	
527	537	3866.6	3872.2	1929.8	13	15.4966	964.4698	929.8016	14.4172	13.804	0.6128	0.9576	0.964	0.041	1194.2778	19.1892	62.2372	
528	111	4109	4106.6	276.4	13.4	12.3254	749.9948	739.5438	10.8072	10.112	0.6952	0.9358	0.9866	0.0636	1369.2856	22.5034	60.8272	
529	541	3870.6	3871.4	481	8.8	9.171	508.8086	550.2644	8.5292	7.28	1.2492	0.8536	1.0812	0.1582	967.7634	17.4436	55.4836	
535	529	3871.4	3870.6	235	5.2	4.5392	277.8688	272.3638	4.2218	3.976	0.2458	0.942	0.98	0.057	967.776	15.81	61.2128	
536	615	5453	5443.8	2003	15	6.7882	233.1994	407.2924	4.569	2.371	2.1984	0.5928	1.7792	0.856	1362.0492	39.648	38.5516	
537	535	3872.2	3871.4	642.6	6.6	6.6784	412.07	400.7092	6.2104	5.895	0.3152	0.9494	0.9724	0.0494	967.8516	15.6864	61.7012	
538	586	2400.4	2403.6	195.8	1.6	3.2894	207.8974	197.3646	4.93	4.794	0.1364	0.9724	0.9494	0.0262	800.655	12.6682	63.202	
541	538	2400.4	2400.4	697.8	3.4	3.602	227.3114	216.1298	5.4024	5.245	0.1576	0.9706	0.9506	0.0276	800.136	12.6798	63.105	
541	596	1471	1471.6	0	1.4	1.6816	60.1918	100.8898	4.114	3.682	0.4324	0.895	1.6762	0.1762	1471.3564	41.1034	35.7976	
542	548	8635.6	8633.6	575.8	22	21.7596	906.063	1305.5764	9.0716	5.811	3.2606	0.6406	1.4408	0.5178	2158.8504	51.8458	41.6464	
542	554	2643	2642.8	47.6	0.8	1.2846	72.5828	77.0678	1.7494	1.648	0.1014	0.9418	1.0616	0.0616	1321.5092	23.386	56.5188	
544	536	3489.4	3479.4	508.2	17	9.2132	490.6216	552.8018	9.5182	7.794	1.7246	0.8408	1.1272	0.2042	1162.1718	21.8244	54.658	
547	566	2015.8	2009.2	0	9.2	4.6268	141.7858	277.6118	8.743	4.612	4.1314	0.6334	2.0684	0.9774	2012.4452	65.6716	34.841	
547	711	6160.6	6159.6	243.8	8.2	9.2042	399.0012	552.2462	5.3816	3.587	1.7946	0.667	1.3848	0.4618	2053.34	47.366	43.3572	
548	580	8633.6	8634.4	154.2	13.2	14.3782	657.3756	862.6982	5.995	4.217	1.7782	0.7036	1.3122	0.3892	2158.5466	47.2124	45.73	
549	226	1646.4	1645	0	3.2	2.8416	146.788	170.4834	6.2158	5.839	0.3772	0.9394	1.1612	0.0702	1645.5218	31.8526	51.6642	
549	595	5422	5421.8	168.2	7	7.9472	473.4256	476.8282	5.2762	4.836	0.4406	0.9166	1.0072	0.084	1807.4382	30.3406	59.5756	
553	351	7993.4	7991	2905.8	30.2	31.5056	1819.303	1890.3502	14.1918	12.608	1.5834	0.8884	1.0388	0.1158	1625.9176	28.157	57.7494	
554	231	2642.8	2643.4	68.8	1.8	2.4318	138.156	145.9072	3.3116	3.136	0.1756	0.9472	1.0558	0.0558	1321.491	23.2608	56.8224	
556	346	7989.2	7986.2	1662	15.8	14.1096	822.9956	846.584	6.3588	5.706	0.6524	0.8974	1.0286	0.1056	1996.9748	34.2368	58.3334	
557	802	1700.6	1700	0	2	1.5318	64.0772	91.911	3.2432	3.015	0.2282	0.9298	1.4342	0.1008	1700.138	40.6442	41.8404	
557	804	6282.4	6282.2	536.2	10	11.0754	597.383	664.5352	6.3436	5.266	1.0776	0.8304	1.112	0.1888	1570.8078	29.1228	53.9788	
558	559	9445	9431.2	1627	46.8	36.5864	1783.917	2195.1952	14.1452	10.469	3.6768	0.7696	1.2472	0.3242	1887.5916	38.713	50.0122	
559	560	8207.6	8190.2	1157.6	56.8	43.7054	2116.729	2622.3284	19.4454	14.297	5.1482	0.7608	1.2552	0.3322	2049.9498	42.3268	49.453	
559	561	1223.6	1223.4	0	1.8	1.9284	108.7302	115.7122	5.673	5.33	0.3432	0.9392	1.0642	0.0642	1224.0814	21.7114	56.3716	
560	547	8190.2	8176.4	625	33.2	25.7554	1179.368	1545.3362	11.4806	7.983	3.4978	0.7198	1.3276	0.4046	2045.6838	44.6746	46.7924	
561	577	1223.4	1225	0	3.2	3.8372	214.6192	230.226	11.2894	10.523	0.7666	0.932	1.073	0.073	1223.747	21.8788	55.9266	
562	564	7073.8	7075.4	1077.2	6.8	9.6298	460.8744	577.7792	4.8994	3.608	1.2914	0.7366	1.2536	0.3302	1826.8888	38.1716	47.8786	
563	600	7146.4	7147.6	488	7.4	9.3618	522.4896	561.7064	4.7154	4.049	0.6664	0.8586	1.075	0.1518	1786.7516	32.0144	55.8148	
564	563	6290	6288.8	368.2	14.4	15.8022	849.3946	948.1464	9.0428	7.479	1.5638	0.8272	1.1162	0.1932	2096.6824	39.0072	53.7626	
564	603	785.4	786	0	2.6	2.667	116.4396	160.014	12.2264	11.864	0.3626	0.9704	1.374	0.0408	785.1876	17.9836	43.6658	
566	570	2009.2	2004.2	0	6	3.0586	89.3174	183.5098	5.792	3.205	2.5874	0.657	2.169	0.969	2006.7892	68.7186	32.8574	
568	536	1981	1973.6	0	11.6	4.9442	130.309	296.6506	9.5568	5.273	4.2842	0.6598	2.4166	1.0834	1977.101	75.015	29.6896	
569	544	3490.8	3489.4	592.6	8.6	9.0866	569.7074	545.1994	9.374	9.042	0.3322	0.9646	0.957	0.034	1163.2076	18.5528	62.6976	
570	100	2004.2	2000.2	0	6.4	3.4792	94.036	208.7478	6.5846	3.758	2.8268	0.6648	2.3364	1.0032	2002.0562	74.0722	29.919	
574	158	1112.8	1114	0	1.6	1.9418	72.1324	116.511	6.277	5.83	0.4476	0.9286	1.615	0.115	1113.6272	29.9794	37.1488	
576	124	911.2	910.6	0	4.6	4.578	194.9702	274.6832	18.1062	17.136	0.9698	0.9464	1.4086	0.0754	910.2058	21.3726	42.59	
577	235	1225	1225.6	0	0	0.6882	37.8244	41.2932	2.0224	2.0224	0	1	1.0916	0	612.6172	11.1466	54.956	
580	549	7066.4	7068.4	2247.4	29	29.4532	1564.936	1767.1894	15.0008	12.262	2.7384	0.8176	1.1292	0.2062	2062.1066	38.8104	53.1378	
580	581	1568	1567.8	108.2	1.8	1.4858	76.325	89.1412	3.4106	3.186	0.2246	0.9342	1.1682	0.0772	784.0388	15.2616	51.3778	
581	582	1567.8	1567.6	51	1.8	1.7932	89.958	107.5852	4.1176	4.1174	0.0002	1	1.196	0	783.792	15.6228	50.1712	
582	199	1567.6	1566.8	5.8	1.4	1.1864	54.9106	71.187	2.7252	2.7252	0	1	1.2964	0	783.5904	16.9312	46.2828	
583	584	1227.6	1230.4	0	1	2.2466	104.2736	134.7882	6.5798	4.699	1.8802	0.7142	1.2926	0.3696	1228.938	26.4762	46.4244	

MODIFIED RECOMMENDED ALTERNATIVE WITH ADDITIONAL LANES 2040

CUMULATIVE FRESIM STATISTICS AT TIME 13: 0: 0
LINK STATISTICS

Up Node	Down Node	In	Out	Lane Chng	Current Cont	Avg Cont	Veh-Miles	Veh-Min	Total Time	Move Time/ Vehicle	Delay Time Per Vehicle	M/T	Total	Delay	Volume (Veh/Ln/Hr)	Density Veh/Ln-Mile	Speed (mph)	Link Type
584	585	2795.6	2796.4	1017	2.6	3.152	183.7384	189.1154	4.0584	3.64	0.4184	0.897	1.0294	0.1062	931.9294	15.9868	58.2998	
585	620	2796.4	2796.8	681.2	3.2	2.926	175.8462	175.566	3.7666	3.483	0.2838	0.9248	0.9982	0.0752	932.1968	15.5122	60.1016	
586	587	2917.2	2915.8	1238	6	4.9842	299.8922	299.064	6.1536	5.696	0.4576	0.9258	0.9972	0.074	729.0202	12.1166	60.1662	
587	588	2915.8	2917.2	88	3.2	4.5108	279.5288	270.6508	5.5674	5.308	0.2596	0.9534	0.9682	0.0452	729.2058	11.7676	61.969	
588	611	2917.2	2919.4	49	3	4.1618	248.1238	249.6992	5.1346	4.71	0.425	0.9174	1.0062	0.0832	729.451	12.2348	59.6226	
590	591	3487	3488	499.6	5.8	5.4234	300.5168	325.4016	5.5986	4.773	0.826	0.8524	1.0828	0.1598	952.9902	17.1986	55.4122	
591	592	3488	3489.4	194.6	5.6	5.959	360.0528	357.5354	6.1498	5.717	0.433	0.9298	0.993	0.07	1162.7388	19.2436	60.4224	
592	569	3489.4	3490.8	79.6	3.2	4.5376	282.9286	272.2566	4.6802	4.49	0.1906	0.959	0.962	0.039	1163.4452	18.6592	62.352	
594	114	1113.4	1113	57.2	1.6	1.6218	63.0232	97.308	5.2462	5.097	0.1496	0.9714	1.544	0.044	556.4594	14.3196	38.8592	
595	553	5421.8	5424	142.4	7	8.1706	495.0172	490.2354	5.4242	5.056	0.3684	0.9322	0.9904	0.0674	1807.5322	29.8344	60.588	
596	200	1471.6	1471.8	0	2	1.915	70.2296	114.9026	4.6852	4.295	0.3898	0.9166	1.636	0.136	1471.4782	40.1248	36.6724	
599	528	5433.6	5403.6	930.8	42.6	20.1192	656.0054	1207.1568	13.632	6.703	6.9292	0.581	1.8772	0.9542	1114.0912	34.1682	37.752	
600	565	7147.6	7148	363	13.6	14.8476	878.633	890.8448	7.477	6.808	0.6692	0.9106	1.0138	0.0906	1787.0502	30.1982	59.1836	
601	401	6507	6313.6	815	297	211.8	5984.618	12708.02	118.3392	51.43	66.9088	0.4352	2.124	1.201	2148.262	76.0286	28.2818	
610	636	1818.8	1817.8	135.8	4	3.1288	198.6846	187.7308	6.1954	6.052	0.143	0.977	0.945	0.022	606.0392	9.544	63.5006	
611	156	1101.4	1101.2	0	2.2	1.5732	68.4306	94.3838	5.1406	4.97	0.171	0.9668	1.379	0.0458	1101.5654	25.3226	43.5054	
611	612	1818	1817.8	37	2	1.963	124.638	117.777	3.8872	3.797	0.09	0.9768	0.9448	0.0218	605.9746	9.5438	63.495	
612	610	1817.8	1818.8	35.4	1.8	1.86	118.1056	111.5922	3.6828	3.598	0.0848	0.9768	0.9446	0.0216	606.0232	9.5436	63.5016	
614	644	3875.4	3875	184.2	6.8	7.5482	463.8676	452.8918	7.0112	6.629	0.3822	0.9456	0.9764	0.0534	968.8376	15.7652	61.4618	
615	599	5443.8	5433.6	605.8	17	8.3514	306.9362	501.0792	5.6186	3.126	2.4926	0.624	1.659	0.736	1359.5834	36.9926	40.572	
620	545	2796.8	2796.6	50.6	2	2.6844	152.5334	161.0462	3.4546	3.021	0.4336	0.8748	1.0554	0.1324	932.1484	16.4028	56.8542	
622	188	1892	1891	363.8	3.4	2.6784	113.8946	160.7018	5.0982	4.818	0.2802	0.945	1.4108	0.0776	945.539	22.2354	42.5264	
625	189	2256.4	2257.8	9.8	2.6	2.4722	108.1508	148.3304	3.943	3.833	0.1098	0.972	1.3716	0.0382	752.3548	17.1976	43.7476	
626	627	1976.4	1975.6	60.8	4	2.9782	187.8694	178.6932	5.426	5.266	0.1602	0.9706	0.9512	0.0282	658.6656	10.4414	63.0812	
627	107	1975.6	1977.2	158	5	6.0216	381.0138	361.2956	10.9694	10.678	0.291	0.9734	0.9482	0.0252	658.7272	10.4106	63.2744	
628	626	1977	1976.4	57.6	2.4	2.3494	145.2484	140.9536	4.279	4.07	0.209	0.9512	0.9702	0.0472	658.8592	10.656	61.8286	
631	568	1985.8	1981	0	9	5.1704	137.118	310.2274	9.9684	5.53	4.4382	0.6672	2.4032	1.0702	1983.5172	74.7944	30.0212	
636	639	1817.8	1819.6	142.8	4.4	5.3544	339.232	321.2854	10.6012	10.332	0.2688	0.9744	0.9472	0.0238	606.1402	9.568	63.351	
637	629	4227.4	4229	1975.8	5.2	7.259	436.4698	435.5376	6.1796	5.717	0.4632	0.925	0.998	0.075	1057.1374	17.5814	60.131	
638	738	1067.6	1068.6	0	1.4	1.6424	69.1892	98.5522	5.5358	5.182	0.3538	0.936	1.4244	0.0908	1068.1848	25.3584	42.124	
639	221	3875.2	3874.8	1749.8	6.8	5.5798	221.6196	334.7864	5.1826	3.168	2.0148	0.6116	1.51	0.587	847.3222	21.333	39.762	
644	645	3875	3875.6	180.2	10.4	8.2398	516.016	494.3814	7.6532	7.374	0.279	0.9636	0.958	0.035	968.906	15.4716	62.631	
645	649	4706.6	4714.2	1865.2	30.8	35.513	2173.075	2130.7734	27.1312	25.542	1.5892	0.9416	0.9806	0.0576	1088.5992	17.7902	61.193	
647	638	5293.4	5294	219.8	10.2	10.863	646.6876	651.7686	7.3872	6.766	0.6214	0.9158	1.0078	0.0848	1323.454	22.2306	59.5326	
648	647	5297.8	5293.4	3044.2	31.8	31.1468	1947.909	1868.7994	20.9648	20.171	0.7934	0.962	0.9594	0.0362	1337.0986	21.3798	62.54	
651	645	832.2	831	0	1.6	1.3082	54.9736	78.4868	5.6622	5.288	0.3742	0.9338	1.4274	0.0944	831.6878	19.7902	42.0276	
657	542	11287.8	11278.6	9870	163	165.603	4777.863	9936.205	52.8484	23.455	29.394	0.4438	2.0798	1.1568	1880.3756	65.1748	28.8566	
658	659	1995.8	1992	0	5.8	3.2494	76.2856	194.9512	6.145	3.443	2.7018	0.6314	2.6772	1.1772	1993.9988	84.9292	25.255	
659	631	1992	1985.8	0	9.6	5.0672	129.1994	304.0336	9.6846	5.197	4.4876	0.6264	2.4846	1.1516	1988.8416	78.0028	28.1962	
661	553	2570.2	2569.4	205.2	3.2	2.5868	114.8606	155.207	3.6238	3.218	0.4058	0.8882	1.3512	0.1512	1284.8784	28.9368	44.4032	
663	584	1565.8	1565.2	87.4	2.2	2.0174	110.3148	121.0438	4.6382	3.902	0.7358	0.8414	1.0972	0.174	782.8784	14.317	54.684	
691	238	3358	3358.8	256.2	5.2	5.0272	215.6266	301.6338	5.3892	5.136	0.2522	0.9534	1.399	0.0654	1119.4768	26.1	42.8918	
701	236	819.8	818.8	0	1.8	0.8776	38.3192	52.6474	3.8558	3.742	0.1136	0.9706	1.3738	0.0406	819.1282	18.7572	43.675	
701	237	1825	1824.4	31.2	2.6	1.8716	82.2532	112.31	3.6928	3.606	0.0868	0.9764	1.3656	0.032	912.3874	20.7632	43.9414	
705	133	1701.8	1701.6	672.8	3.6	3.4014	145.386	204.07	7.1934	6.833	0.3604	0.9498	1.4036	0.0704	851.0404	19.9094	42.7462	
706	123	1443.8	1444.8	0	6.6	7.6704	317.3306	460.2256	19.1178	17.576	1.5418	0.9194	1.4502	0.117	1444.4016	34.9136	41.3708	
708	136	1700.6	1702.6	293.8	2.6	4.1452	175.9404	248.7014	8.7702	8.273	0.4974	0.9432	1.4136	0.0802	850.7016	20.0416	42.4482	
711	562	7070	7073.8	1666.6	21.4	26.4818	993.782	1588.8976	13.4786	7.783	5.6952	0.5776	1.5986	0.6756	1856.7478	49.4772	37.5522	
804	801	3575.8	3572.4	155.4	7	5.4474	328.949	326.8474	5.4866	5.098	0.3886	0.9294	0.9934	0.0702	1191.255	19.7274	60.4002	
804	803	2706.4	2707	110.6	2.2	2.5088	137.8808	150.5144	3.3364	3.057	0.2796	0.9162	1.0914	0.0914	1353.1824	24.6194	54.9764	
156	7010	1101.2	1100.4	0	1.6	1.204	50.4534	72.2422	3.9374	3.667	0.2708	0.9314	1.4318	0.0984	1100.8022	26.2698	41.9062	
188	7002	1891	1891.2	0	1.4	1.3514	58.742	81.0778	2.5722	2.485	0.0872	0.966	1.38	0.0468	945.6024	21.7524	43.4728	
192	7007	742.2	742.4	0	0.2	0.8404	37.2634	50.4156	4.0738	4.015	0.0584	0.9856	1.3526	0.0194	742.4574	16.7418	44.3556	
236	7013	818.8	818.8	0	1.2	0.9406	39.55	56.4394	4.1348	3.864	0.271	0.9344	1.4268	0.0934	818.9164	19.4772	42.0546	
528	7005	1294.6	1266	0	29.8	9.637	83.6908	578.2158	28.396	5.881	22.5152	0.3836	7.2432	5.7432	640.4152	73.7436	15.3396	
603	7009	786	787.6	0	0.8	2.2628	98.3652	135.7778	10.3514	10	0.3514	0.966	1.38	0.047	786.9234	18.1036	43.4732	
7001	106	1509.8	1509	622.2	2.8	2.1332	72.146	127.9908	4.717	3.545	1.1714	0.7518	1.774	0.4406	813.9538	24.0668	33.8246	
7004	198	1102.6	1102.8	0	1.2	1.293	48.0906	77.5864	3.8866	3.212	0.6746	0.8262	1.6134	0.2798	1197.7254	32.2056	37.1918	
7006	104	940.2	941.8	470	1.2	1.532	47.1596	91.9192	5.449	3.727	1.722	0.6842	1.9492	0.616	506.1044	16.4408	30.7904	
7011	208	678.8	678.4	0	0.8	0.7434	28.4814	44.6032	3.6126	3.076	0.5368	0.8518	1.5662	0.2326	740.803	19.3354	38.3152	
7015	211	471.2	471.2	0	0.2	0.44	15.7658	26.405	3.007	2.394	0.6132	0.796	1.6752	0.3412	526.8548	14.7066	35.8242	
7016	213	363.4	363.2	0	0.2	0.2474	8.4884	14.836	2.0858	1.591	0.4948	0.7628	1.748	0.4146	426.844	12.434	34.3296	
738	7018	1068.6	1069	0	0.4	0.9988	41.6914	59.9202	3.3644	3.121	0.243	0.9276	1.4372	0.1038	1068.5956	25.5966	41.7472	
802	7026	1700	1700.2	0	1.2	2.1374	85.6536	128.249	4.5256	4.03	0.495	0.8906	1.4972	0.164	1700.1888	42.428	40.077	
803	7025	2707	2706.6	0	3.2	3.0348	165.0878	182.0826	4.0356	3.992	0.0436	0.9892	1.1028	0.012	1353.5172	24.8808	54.4018	

APPENDIX F – SYNCHRO RESULTS

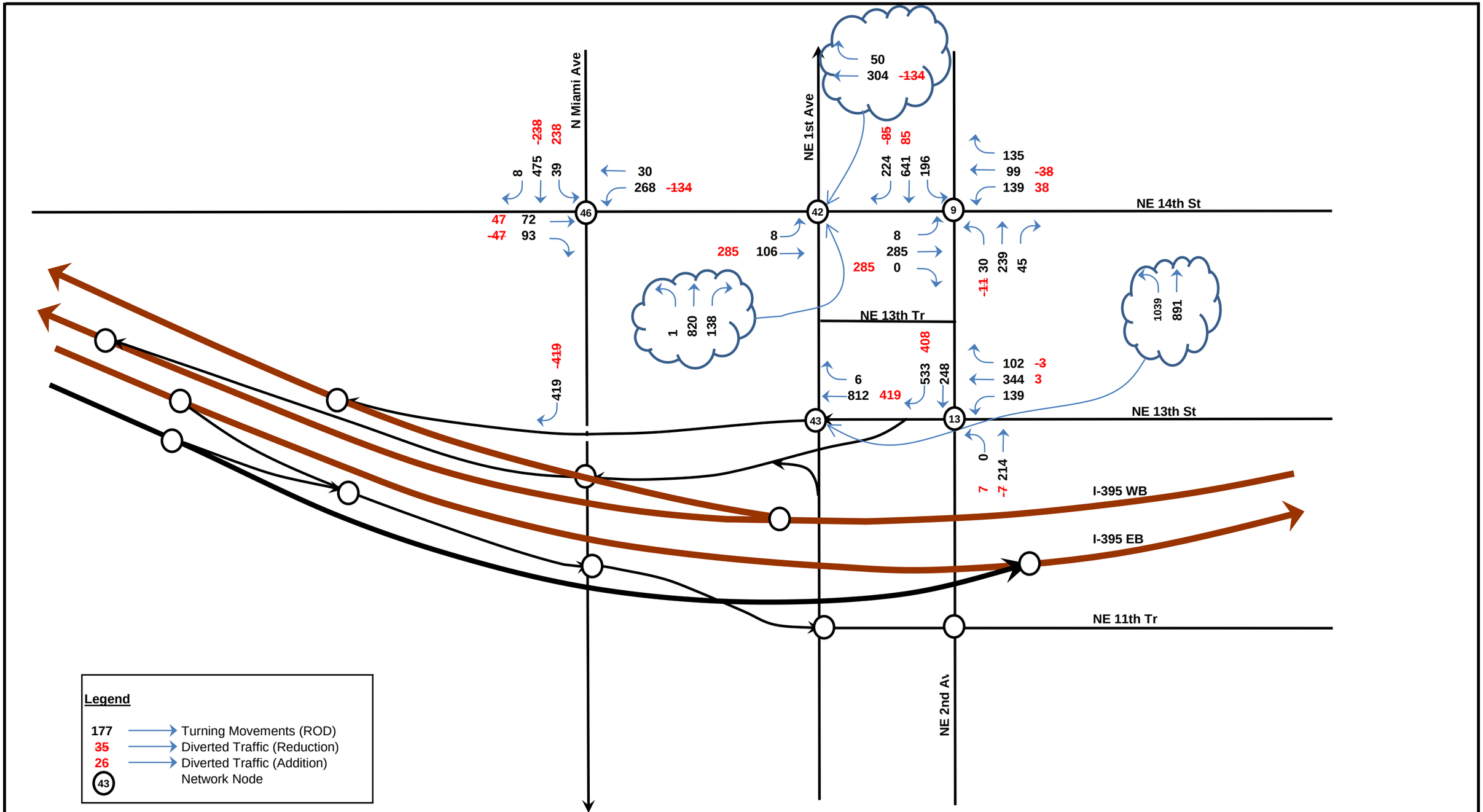


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Figure F-1
I-395 Synchro
2020 MA Turning Movement Adjustments

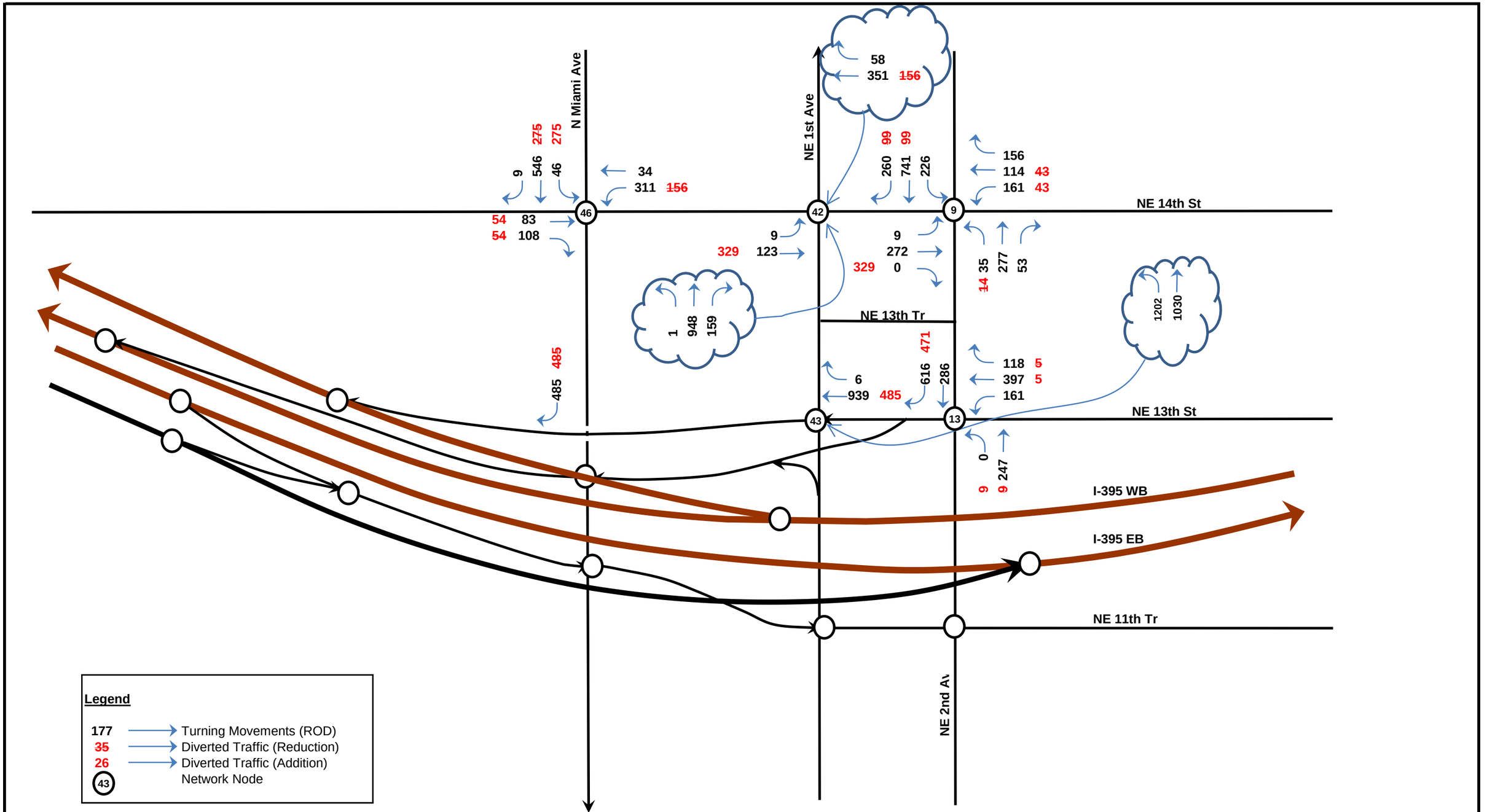

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Figure F-2
I-395 Synchro
2030 MA Turning Movement Adjustments

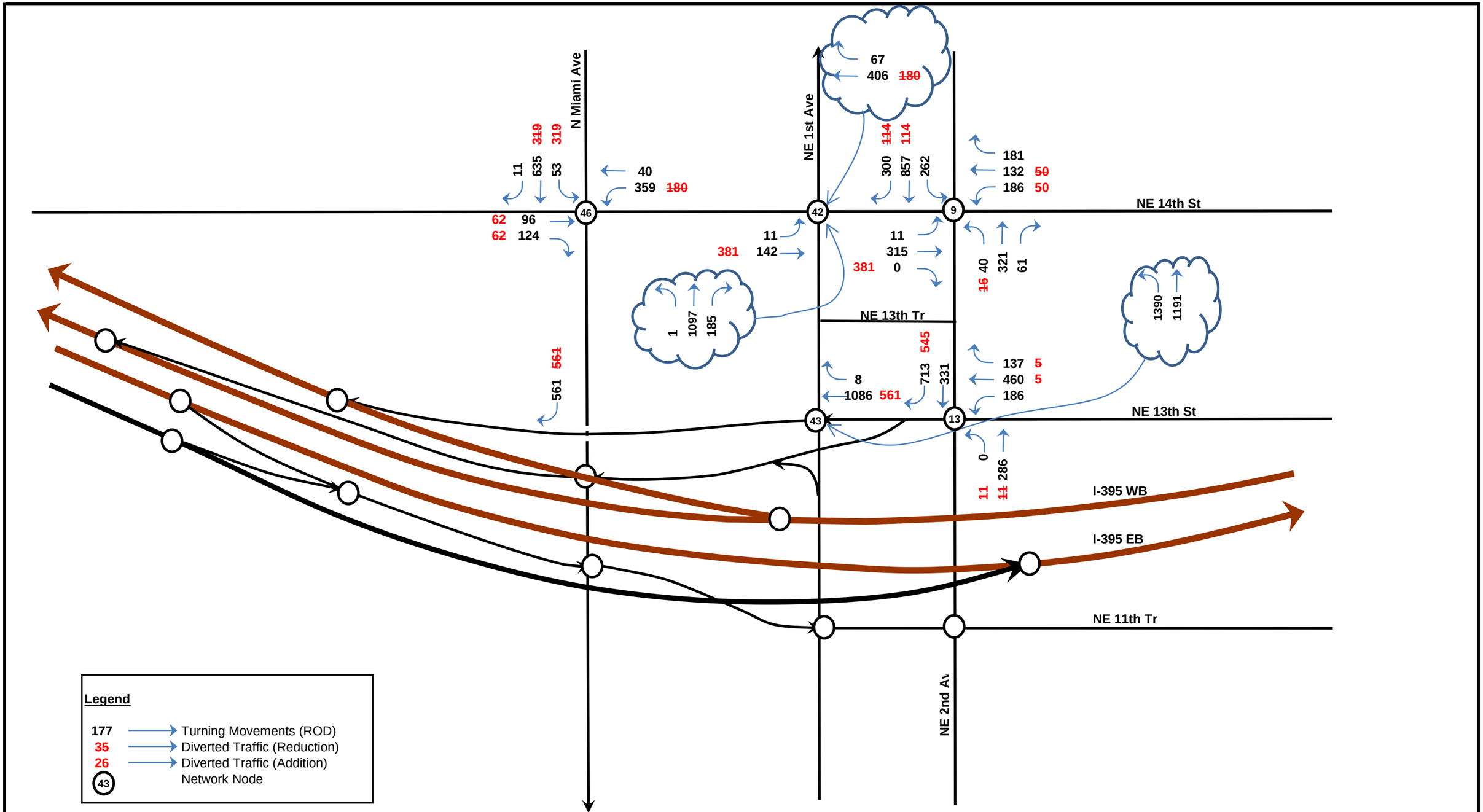

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Figure F-3
I-395 Synchro
2040 MA Turning Movement Adjustments

RECORD OF DECISION (ROD)

2020 Peak Period

2020 IMR
9: NW 14 ST & NE 2 AVE

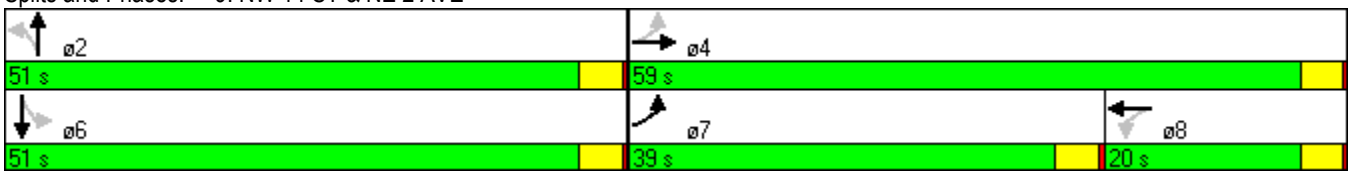
3/20/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	8	235	139	99	30	239	196	641
Turn Type	pm+pt		Perm		Perm		Perm	
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	39.0	59.0	20.0	20.0	51.0	51.0	51.0	51.0
Total Split (%)	35.5%	53.6%	18.2%	18.2%	46.4%	46.4%	46.4%	46.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?								
Recall Mode	Max	Max	Min	Min	C-Min	C-Min	C-Max	C-Max
Act Effct Green (s)	55.0	55.0		16.0		47.0		47.0
Actuated g/C Ratio	0.50	0.50		0.15		0.43		0.43
v/c Ratio	0.01	0.28		0.95		0.33		1.05
Control Delay	14.0	17.1		70.0		20.7		70.5
Queue Delay	0.0	0.0		0.0		0.0		0.0
Total Delay	14.0	17.1		70.0		20.7		70.5
LOS	B	B		E		C		E
Approach Delay		17.0		70.0		20.7		70.5
Approach LOS		B		E		C		E

Intersection Summary

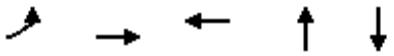
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 56.0 — Intersection LOS: E
Intersection Capacity Utilization 76.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: NW 14 ST & NE 2 AVE



2020 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	9	255	406	342	1153
v/c Ratio	0.01	0.28	0.95	0.33	1.05
Control Delay	14.0	17.1	70.0	20.7	70.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	17.1	70.0	20.7	70.5
Queue Length 50th (ft)	3	101	122	77	~458
Queue Length 95th (ft)	12	156	#222	113	#594
Internal Link Dist (ft)		474	440	403	346
Turn Bay Length (ft)	125				
Base Capacity (vph)	610	901	428	1040	1103
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.01	0.28	0.95	0.33	1.05

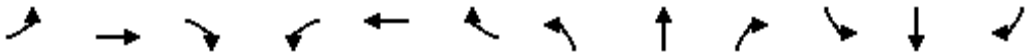
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

2020 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	235	0	139	99	135	30	239	45	196	641	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			0.95			0.95			0.95	
Frt	1.00	1.00			0.95			0.98			0.97	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1711	1801			3176			3332			3283	
Flt Permitted	0.20	1.00			0.76			0.72			0.76	
Satd. Flow (perm)	360	1801			2448			2403			2531	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	255	0	151	108	147	33	260	49	213	697	243
RTOR Reduction (vph)	0	0	0	0	72	0	0	12	0	0	22	0
Lane Group Flow (vph)	9	255	0	0	334	0	0	330	0	0	1131	0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	55.0	55.0			16.0			47.0			47.0	
Effective Green, g (s)	55.0	55.0			16.0			47.0			47.0	
Actuated g/C Ratio	0.50	0.50			0.15			0.43			0.43	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	610	901			356			1027			1081	
v/s Ratio Prot	0.00	c0.14										
v/s Ratio Perm	0.00				c0.14			0.14			c0.45	
v/c Ratio	0.01	0.28			0.94			0.32			1.05	
Uniform Delay, d1	14.6	16.0			46.5			20.9			31.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.0	0.8			31.9			0.8			40.3	
Delay (s)	14.6	16.8			78.4			21.7			71.8	
Level of Service	B	B			E			C			E	
Approach Delay (s)		16.7			78.4			21.7			71.8	
Approach LOS		B			E			C			E	

Intersection Summary			
HCM Average Control Delay	58.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

2020 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013

Lane Group	WBT	NBT	SBT
Lane Configurations			
Volume (vph)	344	214	248
Turn Type			
Protected Phases	8	2	6
Permitted Phases			
Detector Phase	8	2	6
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	29.0	61.0	61.0
Total Split (%)	32.2%	67.8%	67.8%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	25.0	57.0	57.0
Actuated g/C Ratio	0.28	0.63	0.63
v/c Ratio	0.47	0.11	0.42
Control Delay	20.3	13.8	6.9
Queue Delay	0.0	0.0	0.0
Total Delay	20.3	13.8	6.9
LOS	C	B	A
Approach Delay	20.3	13.8	6.9
Approach LOS	C	B	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 42.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: NE 13 ST & NE 2 AVE

2020 IMR
13: NE 13 ST & NE 2 AVE

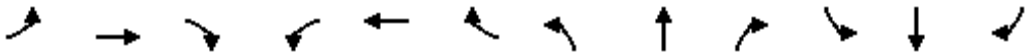
3/20/2013

Lane Group	WBT	NBT	SBT
Lane Group Flow (vph)	636	233	849
v/c Ratio	0.47	0.11	0.42
Control Delay	20.3	13.8	6.9
Queue Delay	0.0	0.0	0.0
Total Delay	20.3	13.8	6.9
Queue Length 50th (ft)	72	62	84
Queue Length 95th (ft)	121	92	120
Internal Link Dist (ft)	450	319	403
Turn Bay Length (ft)			
Base Capacity (vph)	1350	2167	2014
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.11	0.42

Intersection Summary

2020 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	139	344	102	0	214	0	0	248	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.91			0.95			0.95	
Frt					0.97			1.00			0.90	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					4731			3421			3071	
Flt Permitted					0.99			1.00			1.00	
Satd. Flow (perm)					4731			3421			3071	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	151	374	111	0	233	0	0	270	579
RTOR Reduction (vph)	0	0	0	0	36	0	0	0	0	0	69	0
Lane Group Flow (vph)	0	0	0	0	600	0	0	233	0	0	780	0
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					25.0			57.0			57.0	
Effective Green, g (s)					25.0			57.0			57.0	
Actuated g/C Ratio					0.28			0.63			0.63	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					1314			2167			1945	
v/s Ratio Prot								0.07			c0.25	
v/s Ratio Perm					0.13							
v/c Ratio					0.46			0.11			0.40	
Uniform Delay, d1					26.9			6.5			8.1	
Progression Factor					0.77			2.10			1.00	
Incremental Delay, d2					1.1			0.1			0.6	
Delay (s)					21.8			13.7			8.7	
Level of Service					C			B			A	
Approach Delay (s)		0.0			21.8			13.7			8.7	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2020 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	8	106	304	820
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	34.0	34.0	34.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	62.2%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		15.1	15.1	66.9
Actuated g/C Ratio		0.17	0.17	0.74
v/c Ratio		0.23	0.66	0.29
Control Delay		32.1	38.3	0.8
Queue Delay		0.0	0.0	0.0
Total Delay		32.1	38.3	0.8
LOS		C	D	A
Approach Delay		32.1	38.3	0.8
Approach LOS		C	D	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 6 (7%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 12.6	Intersection LOS: B
Intersection Capacity Utilization 35.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: NW 14 ST & NE 1st AVE

2020 IMR
42: NW 14 ST & NE 1st AVE

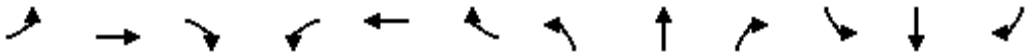
3/20/2013

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	124	384	1042
v/c Ratio	0.23	0.66	0.29
Control Delay	32.1	38.3	0.8
Queue Delay	0.0	0.0	0.0
Total Delay	32.1	38.3	0.8
Queue Length 50th (ft)	34	102	5
Queue Length 95th (ft)	56	141	10
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	1048	1131	3589
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.34	0.29

Intersection Summary

2020 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	106	0	0	304	50	1	820	138	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.98			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3409			3349			4809				
Flt Permitted		0.92			1.00			1.00				
Satd. Flow (perm)		3145			3349			4809				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	115	0	0	330	54	1	891	150	0	0	0
RTOR Reduction (vph)	0	0	0	0	18	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	124	0	0	366	0	0	1026	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		15.1			15.1			66.9				
Effective Green, g (s)		15.1			15.1			66.9				
Actuated g/C Ratio		0.17			0.17			0.74				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		528			562			3575				
v/s Ratio Prot					c0.11							
v/s Ratio Perm		0.04						0.21				
v/c Ratio		0.23			0.65			0.29				
Uniform Delay, d1		32.4			35.0			3.8				
Progression Factor		0.99			1.00			0.15				
Incremental Delay, d2		0.2			2.7			0.2				
Delay (s)		32.2			37.7			0.8				
Level of Service		C			D			A				
Approach Delay (s)		32.2			37.7			0.8			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2020 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	812	1039	891
Turn Type		Perm	
Protected Phases	8		2
Permitted Phases		2	
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	29.0	61.0	61.0
Total Split (%)	32.2%	67.8%	67.8%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	25.0	57.0	57.0
Actuated g/C Ratio	0.28	0.63	0.63
v/c Ratio	0.65	1.04	0.31
Control Delay	34.2	44.3	3.3
Queue Delay	0.0	1.0	0.0
Total Delay	34.2	45.3	3.3
LOS	C	D	A
Approach Delay	34.2		25.9
Approach LOS	C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 82 (91%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 75	
Control Type: Pretimed	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 28.4	Intersection LOS: C
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE

2020 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	890	1129	968
v/c Ratio	0.65	1.04	0.31
Control Delay	34.2	44.3	3.3
Queue Delay	0.0	1.0	0.0
Total Delay	34.2	45.3	3.3
Queue Length 50th (ft)	158	~232	35
Queue Length 95th (ft)	208	#926	m41
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	1365	1089	3113
Starvation Cap Reductn	0	3	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.65	1.04	0.31

Intersection Summary

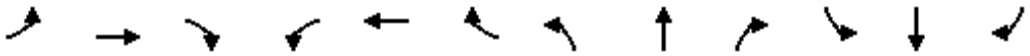
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2020 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	812	6	1039	891	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.91		1.00	0.91				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4910		1711	4916				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4910		1711	4916				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	883	7	1129	968	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	889	0	1124	968	0	0	0	0
Turn Type							Perm					
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					25.0		57.0	57.0				
Effective Green, g (s)					25.0		57.0	57.0				
Actuated g/C Ratio					0.28		0.63	0.63				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					1364		1084	3113				
v/s Ratio Prot					c0.18			0.20				
v/s Ratio Perm							c0.66					
v/c Ratio					0.65		1.04	0.31				
Uniform Delay, d1					28.7		16.5	7.5				
Progression Factor					1.11		0.60	0.42				
Incremental Delay, d2					2.2		31.2	0.2				
Delay (s)					34.0		41.0	3.3				
Level of Service					C		D	A				
Approach Delay (s)		0.0			34.0			23.6			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

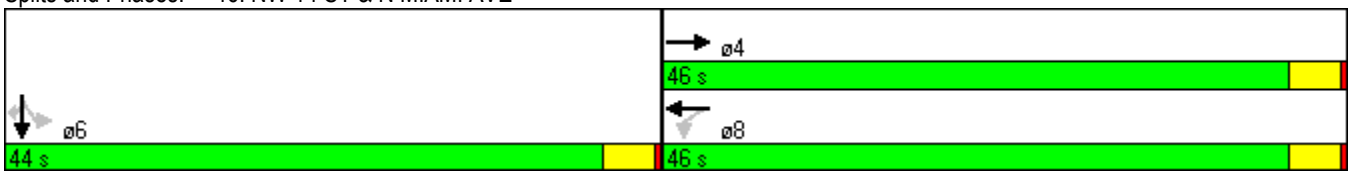
2020 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	72	268	30	475	8
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	46.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	Max	Max
Act Effct Green (s)	42.0	42.0	42.0	40.0	40.0
Actuated g/C Ratio	0.47	0.47	0.47	0.44	0.44
v/c Ratio	0.12	0.54	0.04	0.37	0.01
Control Delay	2.4	14.4	0.7	17.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	14.4	0.7	17.5	7.9
LOS	A	B	A	B	A
Approach Delay	2.4		13.0	17.3	
Approach LOS	A		B	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 16 (18%), Referenced to phase 2: and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 44.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 46: NW 14 ST & N MIAMI AVE



2020 IMR
46: NW 14 ST & N MIAMI AVE

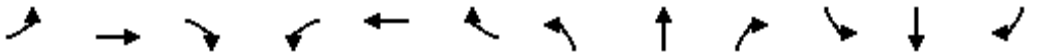
3/20/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	179	291	33	558	9
v/c Ratio	0.12	0.54	0.04	0.37	0.01
Control Delay	2.4	14.4	0.7	17.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	14.4	0.7	17.5	7.9
Queue Length 50th (ft)	2	100	1	107	0
Queue Length 95th (ft)	13	150	1	147	8
Internal Link Dist (ft)	1337		578	310	
Turn Bay Length (ft)					
Base Capacity (vph)	1515	537	840	1515	685
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.54	0.04	0.37	0.01

Intersection Summary

2020 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	72	93	268	30	0	0	0	0	39	475	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.92		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3132		1711	1801						3408	1531
Flt Permitted		1.00		0.64	1.00						1.00	1.00
Satd. Flow (perm)		3132		1150	1801						3408	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	78	101	291	33	0	0	0	0	42	516	9
RTOR Reduction (vph)	0	54	0	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	125	0	291	33	0	0	0	0	0	558	4
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		42.0		42.0	42.0						40.0	40.0
Effective Green, g (s)		42.0		42.0	42.0						40.0	40.0
Actuated g/C Ratio		0.47		0.47	0.47						0.44	0.44
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)		1462		537	840						1515	680
v/s Ratio Prot		0.04			0.02							
v/s Ratio Perm				c0.25							0.16	0.00
v/c Ratio		0.09		0.54	0.04						0.37	0.01
Uniform Delay, d1		13.3		17.1	13.0						16.6	13.9
Progression Factor		0.35		0.59	0.05						1.00	1.00
Incremental Delay, d2		0.1		3.7	0.1						0.7	0.0
Delay (s)		4.8		13.9	0.7						17.3	13.9
Level of Service		A		B	A						B	B
Approach Delay (s)		4.8			12.5			0.0			17.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2030 Peak Period

2030 IMR
9: NW 14 ST & NE 2 AVE

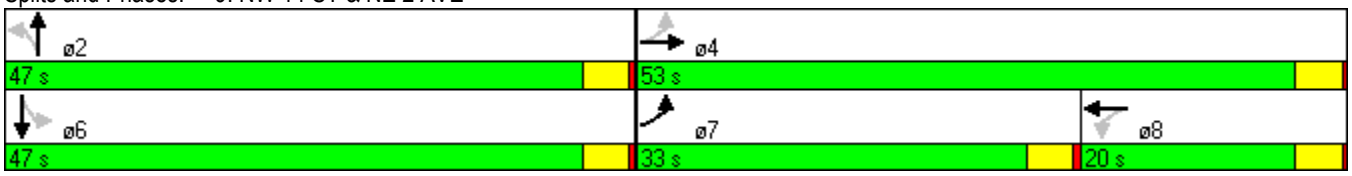
3/20/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	9	272	161	114	35	277	226	741
Turn Type	pm+pt		Perm		Perm		Perm	
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	33.0	53.0	20.0	20.0	47.0	47.0	47.0	47.0
Total Split (%)	33.0%	53.0%	20.0%	20.0%	47.0%	47.0%	47.0%	47.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	Max	Max	Min	Min	C-Min	C-Min	C-Max	C-Max
Act Effct Green (s)	49.0	49.0	16.0	16.0		43.0		43.0
Actuated g/C Ratio	0.49	0.49	0.16	0.16		0.43		0.43
v/c Ratio	0.02	0.34	1.05	0.94		0.41		1.23
Control Delay	18.6	22.9	99.4	53.1		7.4		139.7
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	18.6	22.9	99.4	53.1		7.4		139.7
LOS	B	C	F	D		A		F
Approach Delay		22.8		70.3		7.4		139.7
Approach LOS		C		E		A		F

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 44 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 91.5 — Intersection LOS: F
Intersection Capacity Utilization 82.3% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 9: NW 14 ST & NE 2 AVE



2030 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	10	296	175	294	397	1334
v/c Ratio	0.02	0.34	1.05	0.94	0.41	1.23
Control Delay	18.6	22.9	99.4	53.1	7.4	139.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	22.9	99.4	53.1	7.4	139.7
Queue Length 50th (ft)	4	120	~110	108	32	~551
Queue Length 95th (ft)	m13	188	m#155	m#188	45	#687
Internal Link Dist (ft)		474		440	403	346
Turn Bay Length (ft)	125		125			
Base Capacity (vph)	568	882	167	313	963	1083
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.34	1.05	0.94	0.41	1.23

Intersection Summary

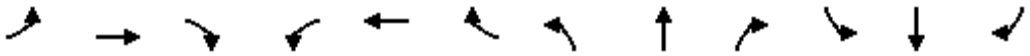
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	272	0	161	114	156	35	277	53	226	741	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	1.00		1.00	0.91			0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1711	1801		1711	1644			3330			3282	
Flt Permitted	0.20	1.00		0.58	1.00			0.66			0.74	
Satd. Flow (perm)	360	1801		1043	1644			2208			2462	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	296	0	175	124	170	38	301	58	246	805	283
RTOR Reduction (vph)	0	0	0	0	50	0	0	14	0	0	25	0
Lane Group Flow (vph)	10	296	0	175	244	0	0	383	0	0	1309	0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.0	49.0		16.0	16.0			43.0			43.0	
Effective Green, g (s)	49.0	49.0		16.0	16.0			43.0			43.0	
Actuated g/C Ratio	0.49	0.49		0.16	0.16			0.43			0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	568	882		167	263			949			1059	
v/s Ratio Prot	0.01	c0.16			0.15							
v/s Ratio Perm	0.00			c0.17				0.17			c0.53	
v/c Ratio	0.02	0.34		1.05	0.93			0.40			1.24	
Uniform Delay, d1	14.4	15.6		42.0	41.4			19.7			28.5	
Progression Factor	1.40	1.38		0.87	0.85			0.33			1.00	
Incremental Delay, d2	0.1	1.0		60.5	21.7			1.3			114.7	
Delay (s)	20.2	22.5		97.3	57.0			7.7			143.2	
Level of Service	C	C		F	E			A			F	
Approach Delay (s)		22.4			72.0			7.7			143.2	
Approach LOS		C			E			A			F	

Intersection Summary			
HCM Average Control Delay	93.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

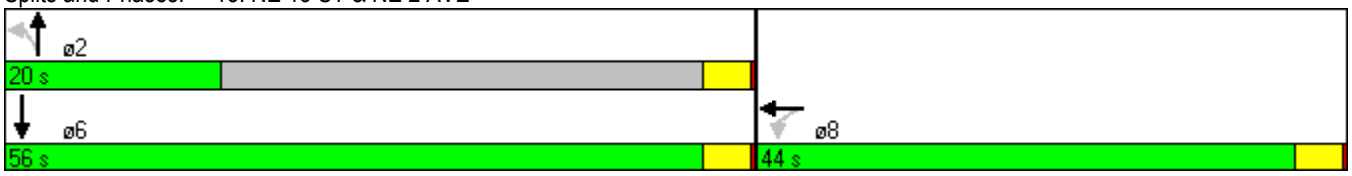
2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013

Lane Group	WBT	NBT	SBT
Lane Configurations			
Volume (vph)	397	247	286
Turn Type			
Protected Phases	8	2	6
Permitted Phases			
Detector Phase	8	2	6
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	44.0	20.0	56.0
Total Split (%)	44.0%	20.0%	56.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	40.0	52.0	52.0
Actuated g/C Ratio	0.40	0.52	0.52
v/c Ratio	0.38	0.15	0.57
Control Delay	9.7	2.9	1.1
Queue Delay	0.0	0.0	0.5
Total Delay	9.7	2.9	1.5
LOS	A	A	A
Approach Delay	9.7	2.9	1.5
Approach LOS	A	A	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 46 (46%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 4.7	Intersection LOS: A
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: NE 13 ST & NE 2 AVE



2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013

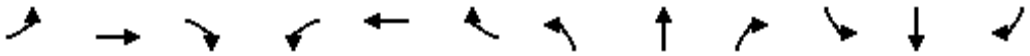
Lane Group	WBT	NBT	SBT
Lane Group Flow (vph)	735	268	981
v/c Ratio	0.38	0.15	0.57
Control Delay	9.7	2.9	1.1
Queue Delay	0.0	0.0	0.5
Total Delay	9.7	2.9	1.5
Queue Length 50th (ft)	64	23	22
Queue Length 95th (ft)	83	28	m15
Internal Link Dist (ft)	450	319	403
Turn Bay Length (ft)			
Base Capacity (vph)	1925	1779	1726
Starvation Cap Reductn	0	0	316
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.15	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	161	397	118	0	247	0	0	286	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.91			0.95			0.95	
Frt					0.97			1.00			0.90	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					4731			3421			3071	
Flt Permitted					0.99			1.00			1.00	
Satd. Flow (perm)					4731			3421			3071	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	175	432	128	0	268	0	0	311	670
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	0	0	129	0
Lane Group Flow (vph)	0	0	0	0	703	0	0	268	0	0	852	0
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					40.0			52.0			52.0	
Effective Green, g (s)					40.0			52.0			52.0	
Actuated g/C Ratio					0.40			0.52			0.52	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					1892			1779			1597	
v/s Ratio Prot								0.08			c0.28	
v/s Ratio Perm					0.15							
v/c Ratio					0.37			0.15			0.53	
Uniform Delay, d1					21.1			12.5			15.9	
Progression Factor					0.47			0.22			0.08	
Incremental Delay, d2					0.5			0.2			0.1	
Delay (s)					10.4			2.9			1.4	
Level of Service					B			A			A	
Approach Delay (s)		0.0			10.4			2.9			1.4	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2030 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	9	123	351	948
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	34.0	34.0	34.0	66.0
Total Split (%)	34.0%	34.0%	34.0%	66.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		18.3	18.3	73.7
Actuated g/C Ratio		0.18	0.18	0.74
v/c Ratio		0.25	0.71	0.34
Control Delay		28.8	46.1	0.4
Queue Delay		0.0	0.0	0.0
Total Delay		28.8	46.1	0.4
LOS		C	D	A
Approach Delay		28.8	46.1	0.4
Approach LOS		C	D	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 70 (70%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 40.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: NW 14 ST & NE 1st AVE

2030 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013

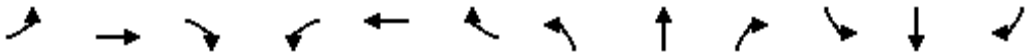
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	144	445	1204
v/c Ratio	0.25	0.71	0.34
Control Delay	28.8	46.1	0.4
Queue Delay	0.0	0.0	0.0
Total Delay	28.8	46.1	0.4
Queue Length 50th (ft)	35	127	1
Queue Length 95th (ft)	53	m104	2
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	941	1018	3560
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.15	0.44	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	123	0	0	351	58	1	948	159	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.98			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3409			3349			4810				
Flt Permitted		0.92			1.00			1.00				
Satd. Flow (perm)		3136			3349			4810				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	134	0	0	382	63	1	1030	173	0	0	0
RTOR Reduction (vph)	0	0	0	0	16	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	144	0	0	429	0	0	1188	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		18.3			18.3			73.7				
Effective Green, g (s)		18.3			18.3			73.7				
Actuated g/C Ratio		0.18			0.18			0.74				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		574			613			3545				
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.05						0.25				
v/c Ratio		0.25			0.70			0.34				
Uniform Delay, d1		35.0			38.3			4.6				
Progression Factor		0.82			1.26			0.03				
Incremental Delay, d2		0.2			0.3			0.2				
Delay (s)		28.8			48.5			0.4				
Level of Service		C			D			A				
Approach Delay (s)		28.8			48.5			0.4			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2030 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	939	1202	1030
Turn Type		Perm	
Protected Phases	8		2
Permitted Phases		2	
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	33.0	67.0	67.0
Total Split (%)	33.0%	67.0%	67.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	29.0	63.0	63.0
Actuated g/C Ratio	0.29	0.63	0.63
v/c Ratio	0.72	1.21	0.36
Control Delay	34.9	113.5	4.3
Queue Delay	0.2	0.0	0.2
Total Delay	35.1	113.5	4.5
LOS	D	F	A
Approach Delay	35.1		63.2
Approach LOS	D		E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 52 (52%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 110	
Control Type: Pretimed	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 54.8	Intersection LOS: D
Intersection Capacity Utilization 91.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE

2030 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	1028	1307	1120
v/c Ratio	0.72	1.21	0.36
Control Delay	34.9	113.5	4.3
Queue Delay	0.2	0.0	0.2
Total Delay	35.1	113.5	4.5
Queue Length 50th (ft)	220	~1033	48
Queue Length 95th (ft)	275	m#451	m57
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	1425	1081	3097
Starvation Cap Reductn	0	0	1049
Spillback Cap Reductn	60	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.75	1.21	0.55

Intersection Summary

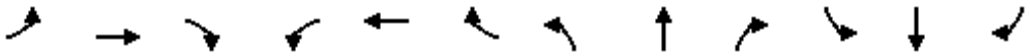
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	939	6	1202	1030	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.91		1.00	0.91				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4911		1711	4916				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4911		1711	4916				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1021	7	1307	1120	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	3	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1027	0	1304	1120	0	0	0	0
Turn Type							Perm					
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					29.0		63.0	63.0				
Effective Green, g (s)					29.0		63.0	63.0				
Actuated g/C Ratio					0.29		0.63	0.63				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					1424		1078	3097				
v/s Ratio Prot					c0.21			0.23				
v/s Ratio Perm							c0.76					
v/c Ratio					0.72		1.21	0.36				
Uniform Delay, d1					31.9		18.5	8.9				
Progression Factor					1.00		0.51	0.47				
Incremental Delay, d2					2.8		98.4	0.1				
Delay (s)					34.6		107.8	4.3				
Level of Service					C		F	A				
Approach Delay (s)		0.0			34.6			60.0			0.0	
Approach LOS		A			C			E			A	

Intersection Summary			
HCM Average Control Delay	52.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

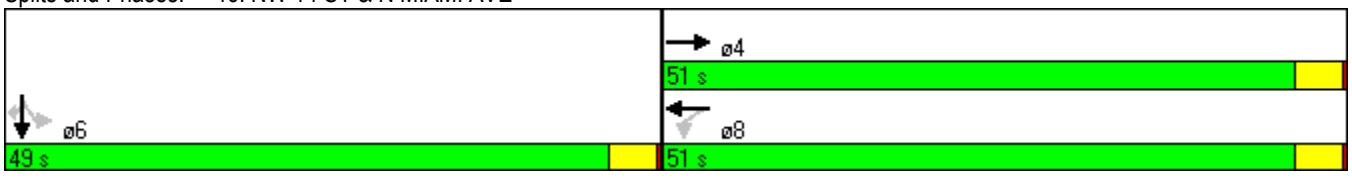
2030 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	83	311	34	549	9
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	51.0	51.0	51.0	49.0	49.0
Total Split (%)	51.0%	51.0%	51.0%	49.0%	49.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	36.2	36.2	36.2	55.8	55.8
Actuated g/C Ratio	0.36	0.36	0.36	0.56	0.56
v/c Ratio	0.17	0.84	0.06	0.34	0.01
Control Delay	2.7	62.0	3.4	14.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	62.0	3.4	14.2	7.8
LOS	A	E	A	B	A
Approach Delay	2.7		56.2	14.1	
Approach LOS	A		E	B	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 78 (78%), Referenced to phase 2: and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 49.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 46: NW 14 ST & N MIAMI AVE



2030 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013

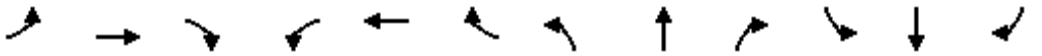
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	207	338	37	647	10
v/c Ratio	0.17	0.84	0.06	0.34	0.01
Control Delay	2.7	62.0	3.4	14.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	62.0	3.4	14.2	7.8
Queue Length 50th (ft)	3	133	2	113	0
Queue Length 95th (ft)	15	189	m2	190	9
Internal Link Dist (ft)	1337		578	379	
Turn Bay Length (ft)					
Base Capacity (vph)	1533	525	846	1901	858
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.64	0.04	0.34	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	83	108	311	34	0	0	0	0	46	549	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.92		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3131		1711	1801						3408	1531
Flt Permitted		1.00		0.62	1.00						1.00	1.00
Satd. Flow (perm)		3131		1117	1801						3408	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	90	117	338	37	0	0	0	0	50	597	10
RTOR Reduction (vph)	0	75	0	0	0	0	0	0	0	0	0	4
Lane Group Flow (vph)	0	132	0	338	37	0	0	0	0	0	647	6
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		36.2		36.2	36.2						55.8	55.8
Effective Green, g (s)		36.2		36.2	36.2						55.8	55.8
Actuated g/C Ratio		0.36		0.36	0.36						0.56	0.56
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1133		404	652						1902	854
v/s Ratio Prot		0.04			0.02							
v/s Ratio Perm				c0.30							0.19	0.00
v/c Ratio		0.12		0.84	0.06						0.34	0.01
Uniform Delay, d1		21.3		29.2	20.8						12.1	9.8
Progression Factor		0.30		1.61	0.18						1.00	1.00
Incremental Delay, d2		0.0		12.9	0.0						0.5	0.0
Delay (s)		6.5		59.8	3.9						12.5	9.8
Level of Service		A		E	A						B	A
Approach Delay (s)		6.5			54.3			0.0			12.5	
Approach LOS		A			D			A			B	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2040 Peak Period

2040 IMR
9: NW 14 ST & NE 2 AVE

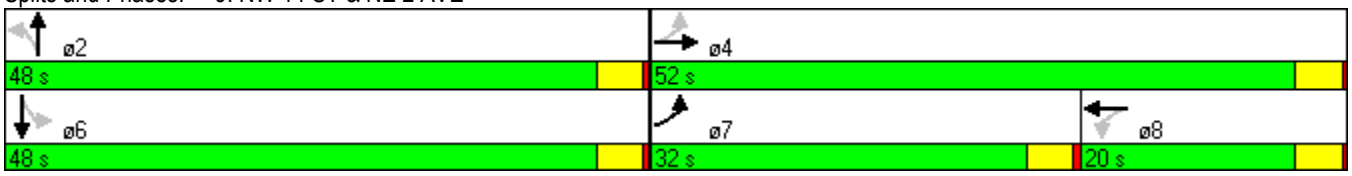
3/20/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	11	315	186	132	40	321	262	857
Turn Type	pm+pt		Perm		Perm		Perm	
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	32.0	52.0	20.0	20.0	48.0	48.0	48.0	48.0
Total Split (%)	32.0%	52.0%	20.0%	20.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	Max	Max	Min	Min	C-Min	C-Min	C-Max	C-Max
Act Effct Green (s)	48.0	48.0	16.0	16.0		44.0		44.0
Actuated g/C Ratio	0.48	0.48	0.16	0.16		0.44		0.44
v/c Ratio	0.02	0.40	1.26	1.09		0.51		1.44
Control Delay	11.9	17.8	178.6	93.7		7.0		230.5
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	11.9	17.8	178.6	93.7		7.0		230.5
LOS	B	B	F	F		A		F
Approach Delay		17.6		125.3		7.0		230.5
Approach LOS		B		F		A		F

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.44
Intersection Signal Delay: 149.5 — Intersection LOS: F
Intersection Capacity Utilization 93.1% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 9: NW 14 ST & NE 2 AVE



2040 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	12	342	202	340	458	1543
v/c Ratio	0.02	0.40	1.26	1.09	0.51	1.44
Control Delay	11.9	17.8	178.6	93.7	7.0	230.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	17.8	178.6	93.7	7.0	230.5
Queue Length 50th (ft)	2	108	~169	~220	41	~706
Queue Length 95th (ft)	m10	190	m#248	m#270	61	#845
Internal Link Dist (ft)		474		440	403	346
Turn Bay Length (ft)	125		125			
Base Capacity (vph)	551	864	160	313	898	1069
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.40	1.26	1.09	0.51	1.44

Intersection Summary

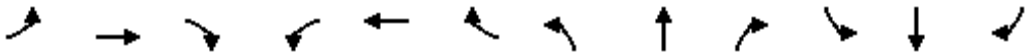
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2040 IMR
9: NW 14 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	315	0	186	132	181	40	321	61	262	857	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	1.00		1.00	0.91			0.98			0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1711	1801		1711	1644			3332			3283	
Flt Permitted	0.20	1.00		0.56	1.00			0.60			0.72	
Satd. Flow (perm)	360	1801		1000	1644			2011			2376	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	342	0	202	143	197	43	349	66	285	932	326
RTOR Reduction (vph)	0	0	0	0	50	0	0	13	0	0	24	0
Lane Group Flow (vph)	12	342	0	202	290	0	0	445	0	0	1519	0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.0	48.0		16.0	16.0			44.0			44.0	
Effective Green, g (s)	48.0	48.0		16.0	16.0			44.0			44.0	
Actuated g/C Ratio	0.48	0.48		0.16	0.16			0.44			0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	551	864		160	263			885			1045	
v/s Ratio Prot	0.01	c0.19			0.18							
v/s Ratio Perm	0.00			c0.20				0.22			c0.64	
v/c Ratio	0.02	0.40		1.26	1.10			0.50			1.45	
Uniform Delay, d1	14.9	16.7		42.0	42.0			20.1			28.0	
Progression Factor	0.86	0.97		0.74	0.68			0.26			1.00	
Incremental Delay, d2	0.1	1.3		147.8	77.2			2.0			209.5	
Delay (s)	13.0	17.5		178.9	105.7			7.2			237.5	
Level of Service	B	B		F	F			A			F	
Approach Delay (s)		17.3			133.0			7.2			237.5	
Approach LOS		B			F			A			F	

Intersection Summary			
HCM Average Control Delay	154.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

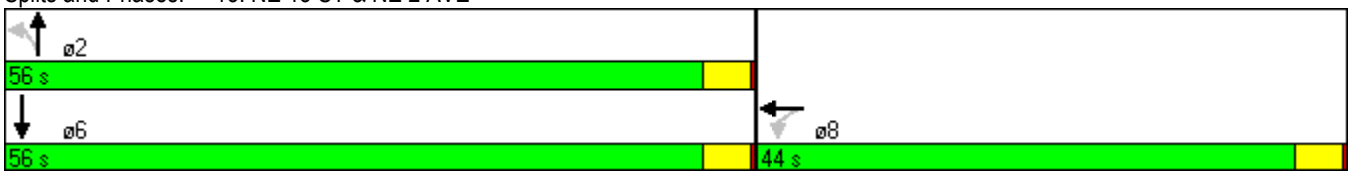
2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013

Lane Group	WBT	NBT	SBT
Lane Configurations			
Volume (vph)	397	247	286
Turn Type			
Protected Phases	8	2	6
Permitted Phases			
Detector Phase	8	2	6
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	44.0	56.0	56.0
Total Split (%)	44.0%	56.0%	56.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	40.0	52.0	52.0
Actuated g/C Ratio	0.40	0.52	0.52
v/c Ratio	0.38	0.15	0.57
Control Delay	9.7	2.9	1.1
Queue Delay	0.0	0.0	0.5
Total Delay	9.7	2.9	1.5
LOS	A	A	A
Approach Delay	9.7	2.9	1.5
Approach LOS	A	A	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 46 (46%), Referenced to phase 2:NBTL and 6:SBT, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 4.7	Intersection LOS: A
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 13: NE 13 ST & NE 2 AVE



2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013

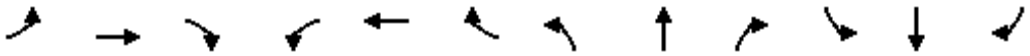
Lane Group	WBT	NBT	SBT
Lane Group Flow (vph)	735	268	981
v/c Ratio	0.38	0.15	0.57
Control Delay	9.7	2.9	1.1
Queue Delay	0.0	0.0	0.5
Total Delay	9.7	2.9	1.5
Queue Length 50th (ft)	64	23	22
Queue Length 95th (ft)	83	28	m15
Internal Link Dist (ft)	450	319	403
Turn Bay Length (ft)			
Base Capacity (vph)	1925	1779	1726
Starvation Cap Reductn	0	0	316
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.15	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

2030 IMR
13: NE 13 ST & NE 2 AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	161	397	118	0	247	0	0	286	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.91			0.95			0.95	
Frt					0.97			1.00			0.90	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					4731			3421			3071	
Flt Permitted					0.99			1.00			1.00	
Satd. Flow (perm)					4731			3421			3071	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	175	432	128	0	268	0	0	311	670
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	0	0	129	0
Lane Group Flow (vph)	0	0	0	0	703	0	0	268	0	0	852	0
Turn Type				Perm			Perm					
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					40.0			52.0			52.0	
Effective Green, g (s)					40.0			52.0			52.0	
Actuated g/C Ratio					0.40			0.52			0.52	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					1892			1779			1597	
v/s Ratio Prot								0.08			c0.28	
v/s Ratio Perm					0.15							
v/c Ratio					0.37			0.15			0.53	
Uniform Delay, d1					21.1			12.5			15.9	
Progression Factor					0.47			0.22			0.08	
Incremental Delay, d2					0.5			0.2			0.1	
Delay (s)					10.4			2.9			1.4	
Level of Service					B			A			A	
Approach Delay (s)		0.0			10.4			2.9			1.4	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	4.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2040 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	11	142	406	1097
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	31.0	31.0	31.0	69.0
Total Split (%)	31.0%	31.0%	31.0%	69.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		20.2	20.2	71.8
Actuated g/C Ratio		0.20	0.20	0.72
v/c Ratio		0.27	0.74	0.40
Control Delay		27.6	48.0	0.5
Queue Delay		0.0	0.0	0.0
Total Delay		27.6	48.0	0.5
LOS		C	D	A
Approach Delay		27.6	48.0	0.5
Approach LOS		C	D	A

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 68 (68%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 14.4 — Intersection LOS: B
Intersection Capacity Utilization 45.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 42: NW 14 ST & NE 1st AVE

2040 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013

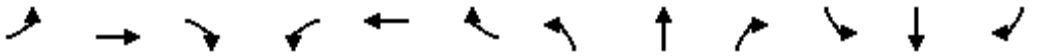
Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	166	514	1394
v/c Ratio	0.27	0.74	0.40
Control Delay	27.6	48.0	0.5
Queue Delay	0.0	0.0	0.0
Total Delay	27.6	48.0	0.5
Queue Length 50th (ft)	40	163	1
Queue Length 95th (ft)	55	m118	3
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	828	917	3470
Starvation Cap Reductn	0	0	249
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.56	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

2040 IMR
42: NW 14 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	142	0	0	406	67	1	1097	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.98			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3409			3348			4809				
Flt Permitted		0.90			1.00			1.00				
Satd. Flow (perm)		3067			3348			4809				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	154	0	0	441	73	1	1192	201	0	0	0
RTOR Reduction (vph)	0	0	0	0	14	0	0	19	0	0	0	0
Lane Group Flow (vph)	0	166	0	0	500	0	0	1375	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		20.2			20.2			71.8				
Effective Green, g (s)		20.2			20.2			71.8				
Actuated g/C Ratio		0.20			0.20			0.72				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		620			676			3453				
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.05						0.29				
v/c Ratio		0.27			0.74			0.40				
Uniform Delay, d1		33.7			37.4			5.6				
Progression Factor		0.81			1.33			0.02				
Incremental Delay, d2		0.2			0.4			0.3				
Delay (s)		27.6			50.1			0.5				
Level of Service		C			D			A				
Approach Delay (s)		27.6			50.1			0.5			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2040 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	1086	1390	1191
Turn Type		Prot	
Protected Phases	8	5	2
Permitted Phases			
Detector Phase	8	5	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	8.0	20.0
Total Split (s)	34.0	66.0	66.0
Total Split (%)	34.0%	66.0%	66.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	30.0	62.0	62.0
Actuated g/C Ratio	0.30	0.62	0.62
v/c Ratio	0.81	1.42	0.42
Control Delay	33.6	206.9	5.0
Queue Delay	11.6	0.6	0.3
Total Delay	45.2	207.5	5.4
LOS	D	F	A
Approach Delay	45.2		114.2
Approach LOS	D		F

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 58 (58%), Referenced to phase 2:NBT and 6:, Start of Green	
Natural Cycle: 120	
Control Type: Pretimed	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 93.7	Intersection LOS: F
Intersection Capacity Utilization 104.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE

2040 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013

Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	1189	1511	1295
v/c Ratio	0.81	1.42	0.42
Control Delay	33.6	206.9	5.0
Queue Delay	11.6	0.6	0.3
Total Delay	45.2	207.5	5.4
Queue Length 50th (ft)	213	~570	73
Queue Length 95th (ft)	268	m#1309	m66
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	1474	1063	3048
Starvation Cap Reductn	0	1	1022
Spillback Cap Reductn	279	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.99	1.42	0.64

Intersection Summary

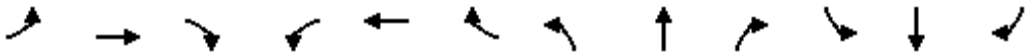
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

2040 IMR
43: NE 13 ST & NE 1st AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1086	8	1390	1191	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.91		1.00	0.91				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4910		1711	4916				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4910		1711	4916				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1180	9	1511	1295	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	2	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1188	0	1509	1295	0	0	0	0
Turn Type							Prot					
Protected Phases					8		5	2				
Permitted Phases												
Actuated Green, G (s)					30.0		62.0	62.0				
Effective Green, g (s)					30.0		62.0	62.0				
Actuated g/C Ratio					0.30		0.62	0.62				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					1473		1061	3048				
v/s Ratio Prot					c0.24		c0.88	0.26				
v/s Ratio Perm												
v/c Ratio					0.81		1.42	0.42				
Uniform Delay, d1					32.3		19.0	9.8				
Progression Factor					0.91		0.37	0.50				
Incremental Delay, d2					3.9		191.4	0.1				
Delay (s)					33.3		198.3	5.0				
Level of Service					C		F	A				
Approach Delay (s)		0.0			33.3			109.1			0.0	
Approach LOS		A			C			F			A	

Intersection Summary			
HCM Average Control Delay	86.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

2040 IMR
46: NW 14 ST & N MIAMI AVE

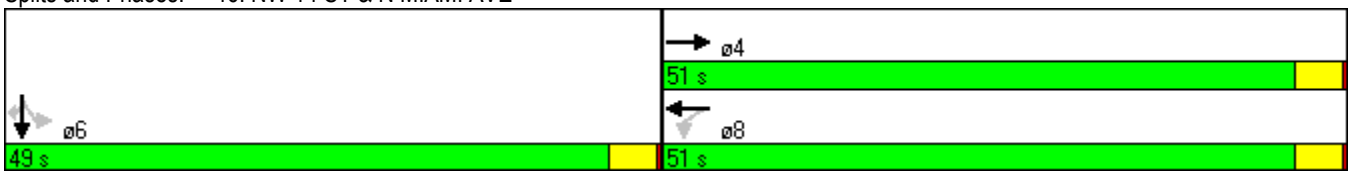
3/20/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	96	359	40	635	11
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	51.0	51.0	51.0	49.0	49.0
Total Split (%)	51.0%	51.0%	51.0%	49.0%	49.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	40.7	40.7	40.7	51.3	51.3
Actuated g/C Ratio	0.41	0.41	0.41	0.51	0.51
v/c Ratio	0.18	0.89	0.06	0.43	0.02
Control Delay	2.5	69.3	6.6	17.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	69.3	6.6	17.4	7.8
LOS	A	E	A	B	A
Approach Delay	2.5		63.0	17.2	
Approach LOS	A		E	B	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 74 (74%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 28.6 — Intersection LOS: C
Intersection Capacity Utilization 55.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 46: NW 14 ST & N MIAMI AVE



2040 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013

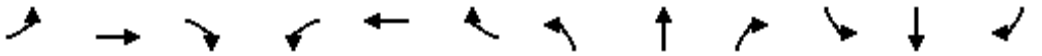
Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	239	390	43	748	12
v/c Ratio	0.18	0.89	0.06	0.43	0.02
Control Delay	2.5	69.3	6.6	17.4	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	2.5	69.3	6.6	17.4	7.8
Queue Length 50th (ft)	4	166	3	157	0
Queue Length 95th (ft)	16	#247	m7	224	10
Internal Link Dist (ft)	1337		578	379	
Turn Bay Length (ft)					
Base Capacity (vph)	1543	504	846	1749	792
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.77	0.05	0.43	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

2040 IMR
46: NW 14 ST & N MIAMI AVE

3/20/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	96	124	359	40	0	0	0	0	53	635	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.92		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3131		1711	1801						3408	1531
Flt Permitted		1.00		0.60	1.00						1.00	1.00
Satd. Flow (perm)		3131		1074	1801						3408	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	104	135	390	43	0	0	0	0	58	690	12
RTOR Reduction (vph)	0	80	0	0	0	0	0	0	0	0	0	6
Lane Group Flow (vph)	0	159	0	390	43	0	0	0	0	0	748	6
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		40.7		40.7	40.7						51.3	51.3
Effective Green, g (s)		40.7		40.7	40.7						51.3	51.3
Actuated g/C Ratio		0.41		0.41	0.41						0.51	0.51
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		1274		437	733						1748	785
v/s Ratio Prot		0.05			0.02							
v/s Ratio Perm				c0.36							0.22	0.00
v/c Ratio		0.12		0.89	0.06						0.43	0.01
Uniform Delay, d1		18.5		27.6	18.0						15.2	11.9
Progression Factor		0.31		1.82	0.42						1.00	1.00
Incremental Delay, d2		0.0		17.3	0.0						0.8	0.0
Delay (s)		5.8		67.5	7.6						16.0	11.9
Level of Service		A		E	A						B	B
Approach Delay (s)		5.8			61.5			0.0			15.9	
Approach LOS		A			E			A			B	

Intersection Summary			
HCM Average Control Delay	28.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

MODIFIED ALTERNATIVE (MA)

2020 Peak Period

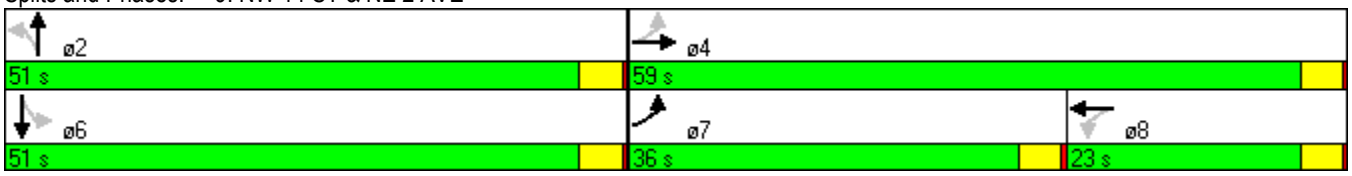
Modified 2020
9: NW 14 ST & NE 2 AVE

3/23/2013

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	8	235	177	61	19	239	196	726
Turn Type	pm+pt		Perm		Perm		Perm	
Protected Phases	7	4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	7	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	36.0	59.0	23.0	23.0	51.0	51.0	51.0	51.0
Total Split (%)	32.7%	53.6%	20.9%	20.9%	46.4%	46.4%	46.4%	46.4%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?								
Recall Mode	Max	Max	Min	Min	C-Min	C-Min	C-Max	C-Max
Act Effct Green (s)	55.0	55.0		19.0		47.0		47.0
Actuated g/C Ratio	0.50	0.50		0.17		0.43		0.43
v/c Ratio	0.02	0.65		0.95		0.28		1.04
Control Delay	14.0	21.5		67.9		19.9		67.8
Queue Delay	0.0	1.5		0.0		0.0		0.0
Total Delay	14.0	23.0		67.9		19.9		67.8
LOS	B	C		E		B		E
Approach Delay		22.9		67.9		19.9		67.8
Approach LOS		C		E		B		E

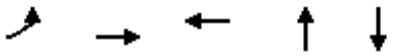
Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 10 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 50.9	Intersection LOS: D
Intersection Capacity Utilization 93.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: NW 14 ST & NE 2 AVE



Modified 2020
9: NW 14 ST & NE 2 AVE

3/23/2013



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	9	565	405	330	1153
v/c Ratio	0.02	0.65	0.95	0.28	1.04
Control Delay	14.0	21.5	67.9	19.9	67.8
Queue Delay	0.0	1.5	0.0	0.0	0.0
Total Delay	14.0	23.0	67.9	19.9	67.8
Queue Length 50th (ft)	3	246	120	72	~458
Queue Length 95th (ft)	12	370	#221	106	#594
Internal Link Dist (ft)		474	440	403	346
Turn Bay Length (ft)	125				
Base Capacity (vph)	588	867	428	1159	1114
Starvation Cap Reductn	0	147	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.02	0.78	0.95	0.28	1.04

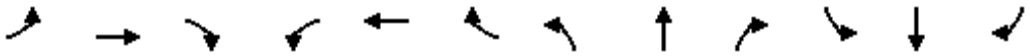
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Modified 2020
9: NW 14 ST & NE 2 AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	235	285	177	61	135	19	239	45	196	726	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			0.95			0.95			0.95	
Frt	1.00	0.92			0.95			0.98			0.98	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1711	1652			3160			3334			3323	
Flt Permitted	0.24	1.00			0.63			0.80			0.77	
Satd. Flow (perm)	434	1652			2054			2683			2581	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	255	310	192	66	147	21	260	49	213	789	151
RTOR Reduction (vph)	0	40	0	0	73	0	0	13	0	0	11	0
Lane Group Flow (vph)	9	525	0	0	332	0	0	317	0	0	1142	0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	55.0	55.0			19.0			47.0			47.0	
Effective Green, g (s)	55.0	55.0			19.0			47.0			47.0	
Actuated g/C Ratio	0.50	0.50			0.17			0.43			0.43	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	588	826			355			1146			1103	
v/s Ratio Prot	0.00	c0.32										
v/s Ratio Perm	0.00				c0.16			0.12			c0.44	
v/c Ratio	0.02	0.64			0.94			0.28			1.04	
Uniform Delay, d1	14.5	20.2			44.9			20.5			31.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	0.0	3.7			31.4			0.6			36.7	
Delay (s)	14.6	23.9			76.3			21.1			68.2	
Level of Service	B	C			E			C			E	
Approach Delay (s)		23.7			76.3			21.1			68.2	
Approach LOS		C			E			C			E	

Intersection Summary			
HCM Average Control Delay	52.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Modified 2020
13: NE 13 ST & NE 2 AVE

3/23/2013

Lane Group	WBT	NBL	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	348	7	207	248	941
Turn Type		Perm			Perm
Protected Phases	8		2	6	
Permitted Phases		2			6
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	67.8%	67.8%	67.8%	67.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	Max	Max
Act Effct Green (s)	25.0		57.0	57.0	57.0
Actuated g/C Ratio	0.28		0.63	0.63	0.63
v/c Ratio	0.47		0.11	0.24	0.56
Control Delay	20.4		14.0	7.8	7.4
Queue Delay	0.0		0.0	0.0	0.3
Total Delay	20.4		14.0	7.8	7.6
LOS	C		B	A	A
Approach Delay	20.4		14.0	7.6	
Approach LOS	C		B	A	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 40
Control Type: Pretimed
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 12.1 — Intersection LOS: B
Intersection Capacity Utilization 60.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 13: NE 13 ST & NE 2 AVE

Modified 2020
13: NE 13 ST & NE 2 AVE

3/23/2013

Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	636	233	270	1023
v/c Ratio	0.47	0.11	0.24	0.56
Control Delay	20.4	14.0	7.8	7.4
Queue Delay	0.0	0.0	0.0	0.3
Total Delay	20.4	14.0	7.8	7.6
Queue Length 50th (ft)	73	62	60	108
Queue Length 95th (ft)	122	93	96	161
Internal Link Dist (ft)	450	319	403	
Turn Bay Length (ft)				
Base Capacity (vph)	1349	2049	1141	1824
Starvation Cap Reductn	0	0	0	250
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.11	0.24	0.65

Intersection Summary

Modified 2020
13: NE 13 ST & NE 2 AVE

3/23/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	139	348	98	7	207	0	0	248	941
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	4.0
Lane Util. Factor					0.91			0.95			1.00	0.88
Frt					0.97			1.00			1.00	0.85
Flt Protected					0.99			1.00			1.00	1.00
Satd. Flow (prot)					4736			3415			1801	2694
Flt Permitted					0.99			0.95			1.00	1.00
Satd. Flow (perm)					4736			3238			1801	2694
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	151	378	107	8	225	0	0	270	1023
RTOR Reduction (vph)	0	0	0	0	34	0	0	0	0	0	0	118
Lane Group Flow (vph)	0	0	0	0	602	0	0	233	0	0	270	905
Turn Type				Perm			Perm					Perm
Protected Phases					8			2			6	
Permitted Phases				8			2					6
Actuated Green, G (s)					25.0			57.0			57.0	57.0
Effective Green, g (s)					25.0			57.0			57.0	57.0
Actuated g/C Ratio					0.28			0.63			0.63	0.63
Clearance Time (s)					4.0			4.0			4.0	4.0
Lane Grp Cap (vph)					1316			2051			1141	1706
v/s Ratio Prot											0.15	
v/s Ratio Perm					0.13			0.07				c0.34
v/c Ratio					0.46			0.11			0.24	0.53
Uniform Delay, d1					26.9			6.5			7.1	9.1
Progression Factor					0.77			2.12			1.00	1.00
Incremental Delay, d2					1.1			0.1			0.5	1.2
Delay (s)					21.8			13.9			7.6	10.3
Level of Service					C			B			A	B
Approach Delay (s)		0.0			21.8			13.9			9.7	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Modified 2020
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	8	391	170	820
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	34.0	34.0	34.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	62.2%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		17.4	17.4	64.6
Actuated g/C Ratio		0.19	0.19	0.72
v/c Ratio		0.69	0.35	0.30
Control Delay		35.0	26.0	0.9
Queue Delay		0.0	0.0	0.0
Total Delay		35.0	26.0	0.9
LOS		C	C	A
Approach Delay		35.0	26.0	0.9
Approach LOS		C	C	A

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 6 (7%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 42.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: NW 14 ST & NE 1st AVE

Modified 2020
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	434	239	1042
v/c Ratio	0.69	0.35	0.30
Control Delay	35.0	26.0	0.9
Queue Delay	0.0	0.0	0.0
Total Delay	35.0	26.0	0.9
Queue Length 50th (ft)	126	50	5
Queue Length 95th (ft)	172	78	10
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	1080	1132	3468
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.21	0.30

Intersection Summary

Modified 2020
42: NW 14 ST & NE 1st AVE

3/23/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	391	0	0	170	50	1	820	138	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.97			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3418			3305			4809				
Flt Permitted		0.95			1.00			1.00				
Satd. Flow (perm)		3241			3305			4809				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	425	0	0	185	54	1	891	150	0	0	0
RTOR Reduction (vph)	0	0	0	0	36	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	434	0	0	203	0	0	1025	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		17.4			17.4			64.6				
Effective Green, g (s)		17.4			17.4			64.6				
Actuated g/C Ratio		0.19			0.19			0.72				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		627			639			3452				
v/s Ratio Prot					0.06							
v/s Ratio Perm		c0.13						0.21				
v/c Ratio		0.69			0.32			0.30				
Uniform Delay, d1		33.8			31.2			4.6				
Progression Factor		0.87			1.00			0.14				
Incremental Delay, d2		3.2			0.3			0.2				
Delay (s)		32.6			31.5			0.9				
Level of Service		C			C			A				
Approach Delay (s)		32.6			31.5			0.9			0.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Modified 2020
43: NE 13 ST & NE 1st AVE

3/23/2013

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	1231	1039	891
Turn Type		Perm	
Protected Phases	8		2
Permitted Phases		2	
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	29.0	61.0	61.0
Total Split (%)	32.2%	67.8%	67.8%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	25.0	57.0	57.0
Actuated g/C Ratio	0.28	0.63	0.63
v/c Ratio	0.99	1.04	0.31
Control Delay	53.8	45.9	3.3
Queue Delay	0.0	0.7	0.0
Total Delay	53.8	46.6	3.3
LOS	D	D	A
Approach Delay	53.8		26.6
Approach LOS	D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 82 (91%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 100	
Control Type: Pretimed	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 37.2	Intersection LOS: D
Intersection Capacity Utilization 88.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE

Modified 2020
43: NE 13 ST & NE 1st AVE

3/23/2013

Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	1345	1129	968
v/c Ratio	0.99	1.04	0.31
Control Delay	53.8	45.9	3.3
Queue Delay	0.0	0.7	0.0
Total Delay	53.8	46.6	3.3
Queue Length 50th (ft)	269	~235	35
Queue Length 95th (ft)	#372	#932	m41
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	1365	1084	3113
Starvation Cap Reductn	0	2	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.99	1.04	0.31

Intersection Summary

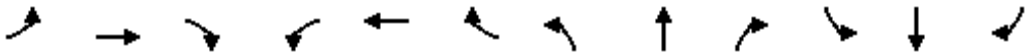
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Modified 2020
43: NE 13 ST & NE 1st AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1231	6	1039	891	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.91		1.00	0.91				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4912		1711	4916				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4912		1711	4916				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1338	7	1129	968	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1344	0	1129	968	0	0	0	0
Turn Type							Perm					
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					25.0		57.0	57.0				
Effective Green, g (s)					25.0		57.0	57.0				
Actuated g/C Ratio					0.28		0.63	0.63				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					1364		1084	3113				
v/s Ratio Prot					c0.27			0.20				
v/s Ratio Perm							c0.66					
v/c Ratio					0.99		1.04	0.31				
Uniform Delay, d1					32.3		16.5	7.5				
Progression Factor					1.04		0.59	0.42				
Incremental Delay, d2					19.4		32.6	0.2				
Delay (s)					52.9		42.3	3.3				
Level of Service					D		D	A				
Approach Delay (s)		0.0			52.9			24.3			0.0	
Approach LOS		A			D			C			A	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

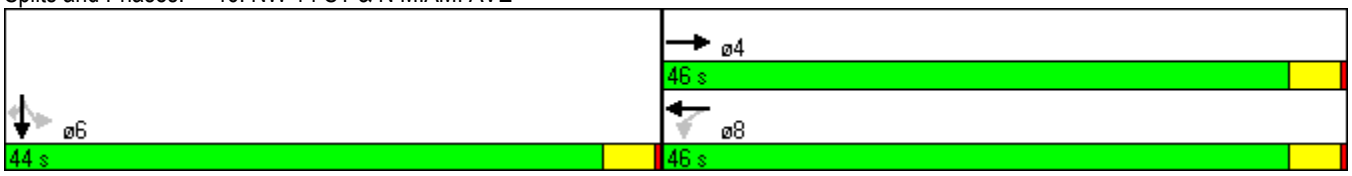
Modified 2020
46: NW 14 ST & N MIAMI AVE

3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	119	134	30	237	8
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	46.0	46.0	46.0	44.0	44.0
Total Split (%)	51.1%	51.1%	51.1%	48.9%	48.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	Max	Max
Act Effct Green (s)	42.0	42.0	42.0	40.0	40.0
Actuated g/C Ratio	0.47	0.47	0.47	0.44	0.44
v/c Ratio	0.12	0.27	0.04	0.38	0.01
Control Delay	5.6	5.4	2.0	17.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	5.4	2.0	17.6	7.9
LOS	A	A	A	B	A
Approach Delay	5.6		4.8	17.5	
Approach LOS	A		A	B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 16 (18%), Referenced to phase 2: and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 37.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 46: NW 14 ST & N MIAMI AVE



Modified 2020
46: NW 14 ST & N MIAMI AVE

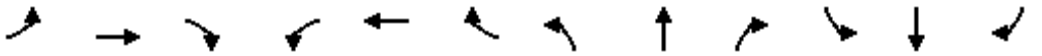
3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	179	146	33	559	9
v/c Ratio	0.12	0.27	0.04	0.38	0.01
Control Delay	5.6	5.4	2.0	17.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	5.4	2.0	17.6	7.9
Queue Length 50th (ft)	10	9	2	107	0
Queue Length 95th (ft)	22	56	3	148	8
Internal Link Dist (ft)	1337		578	310	
Turn Bay Length (ft)					
Base Capacity (vph)	1556	537	840	1481	685
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.27	0.04	0.38	0.01

Intersection Summary

Modified 2020
46: NW 14 ST & N MIAMI AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	119	46	134	30	0	0	0	0	277	237	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.96		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.97	1.00
Satd. Flow (prot)		3278		1711	1801						3332	1531
Flt Permitted		1.00		0.64	1.00						0.97	1.00
Satd. Flow (perm)		3278		1150	1801						3332	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	129	50	146	33	0	0	0	0	301	258	9
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	0	152	0	146	33	0	0	0	0	0	559	4
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		42.0		42.0	42.0						40.0	40.0
Effective Green, g (s)		42.0		42.0	42.0						40.0	40.0
Actuated g/C Ratio		0.47		0.47	0.47						0.44	0.44
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Lane Grp Cap (vph)		1530		537	840						1481	680
v/s Ratio Prot		0.05			0.02							
v/s Ratio Perm				c0.13							0.17	0.00
v/c Ratio		0.10		0.27	0.04						0.38	0.01
Uniform Delay, d1		13.4		14.7	13.0						16.7	13.9
Progression Factor		0.55		0.28	0.15						1.00	1.00
Incremental Delay, d2		0.1		1.2	0.1						0.7	0.0
Delay (s)		7.6		5.3	2.0						17.4	13.9
Level of Service		A		A	A						B	B
Approach Delay (s)		7.6			4.7			0.0			17.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2030 Peak Period

Modified 2030
9: NW 14 ST & NE 2 AVE

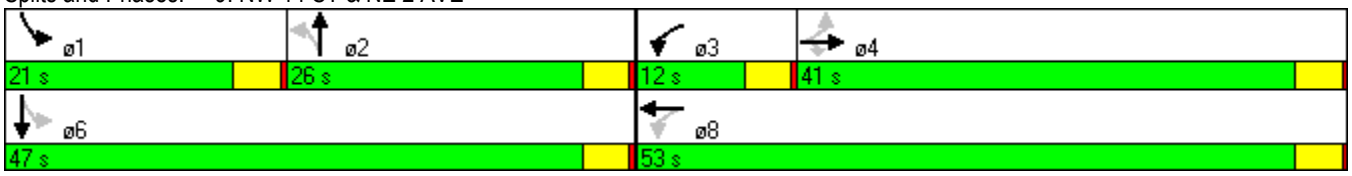
3/24/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	9	272	329	204	71	21	277	226	840
Turn Type	Perm		Perm	pm+pt		Perm		pm+pt	
Protected Phases		4		3	8		2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	20.0	20.0	20.0	8.0	20.0
Total Split (s)	41.0	41.0	41.0	12.0	53.0	26.0	26.0	21.0	47.0
Total Split (%)	41.0%	41.0%	41.0%	12.0%	53.0%	26.0%	26.0%	21.0%	47.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead		Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	
Recall Mode	Max	Max	Max	None	Min	C-Min	C-Min	None	C-Max
Act Effct Green (s)		37.0	37.0	49.0	49.0		24.6	43.0	43.0
Actuated g/C Ratio		0.37	0.37	0.49	0.49		0.25	0.43	0.43
v/c Ratio		0.46	0.56	0.52	0.28		0.53	0.58	0.75
Control Delay		30.8	27.1	27.0	12.9		24.8	25.0	27.3
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		30.8	27.1	27.0	12.9		24.8	25.0	27.3
LOS		C	C	C	B		C	C	C
Approach Delay		28.8			19.6		24.8		26.9
Approach LOS		C			B		C		C

Intersection Summary

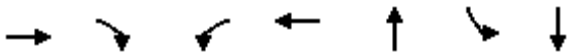
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 44 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 25.8 — Intersection LOS: C
Intersection Capacity Utilization 79.8% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: NW 14 ST & NE 2 AVE



Modified 2030
9: NW 14 ST & NE 2 AVE

3/24/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	306	358	222	247	382	246	1088
v/c Ratio	0.46	0.56	0.52	0.28	0.53	0.58	0.75
Control Delay	30.8	27.1	27.0	12.9	24.8	25.0	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	27.1	27.0	12.9	24.8	25.0	27.3
Queue Length 50th (ft)	187	180	103	63	61	102	292
Queue Length 95th (ft)	273	262	m125	m86	106	162	374
Internal Link Dist (ft)	474			440	403		346
Turn Bay Length (ft)			125				
Base Capacity (vph)	659	637	427	871	715	455	1452
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.56	0.52	0.28	0.53	0.54	0.75

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified 2030
9: NW 14 ST & NE 2 AVE

3/24/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	272	329	204	71	156	21	277	53	226	840	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95		1.00	0.95	
Frt		1.00	0.85	1.00	0.90			0.98		1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1798	1531	1711	1615			3333		1711	3339	
Flt Permitted		0.99	1.00	0.39	1.00			0.85		0.35	1.00	
Satd. Flow (perm)		1781	1531	708	1615			2846		633	3339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	296	358	222	77	170	23	301	58	246	913	175
RTOR Reduction (vph)	0	0	71	0	80	0	0	14	0	0	16	0
Lane Group Flow (vph)	0	306	287	222	167	0	0	368	0	246	1072	0
Turn Type	Perm		Perm	pm+pt			Perm			pm+pt		
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		37.0	37.0	49.0	49.0			24.6		43.0	43.0	
Effective Green, g (s)		37.0	37.0	49.0	49.0			24.6		43.0	43.0	
Actuated g/C Ratio		0.37	0.37	0.49	0.49			0.25		0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		659	566	427	791			700		427	1436	
v/s Ratio Prot				c0.04	0.10					0.08	c0.32	
v/s Ratio Perm		0.17	0.19	c0.21				0.13		0.16		
v/c Ratio		0.46	0.51	0.52	0.21			0.53		0.58	0.75	
Uniform Delay, d1		24.0	24.4	16.0	14.5			32.6		19.6	23.9	
Progression Factor		1.17	1.39	1.59	2.20			0.69		1.00	1.00	
Incremental Delay, d2		2.1	2.9	0.5	0.1			2.8		1.9	3.6	
Delay (s)		30.2	36.8	26.0	32.0			25.2		21.5	27.5	
Level of Service		C	D	C	C			C		C	C	
Approach Delay (s)		33.8			29.1			25.2			26.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Modified 2030
13: NE 13 ST & NE 2 AVE

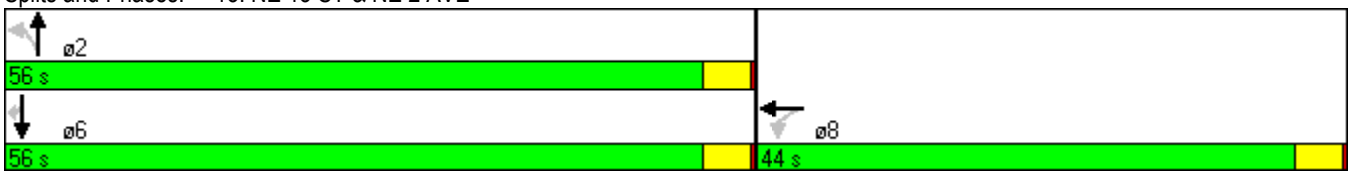
3/23/2013

Lane Group	WBT	NBL	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	402	9	238	286	1087
Turn Type		Perm			Perm
Protected Phases	8		2	6	
Permitted Phases		2			6
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	44.0	56.0	56.0	56.0	56.0
Total Split (%)	44.0%	56.0%	56.0%	56.0%	56.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	Max	Max
Act Effct Green (s)	40.0		52.0	52.0	52.0
Actuated g/C Ratio	0.40		0.52	0.52	0.52
v/c Ratio	0.38		0.16	0.33	0.73
Control Delay	9.8		3.0	10.9	7.9
Queue Delay	0.0		0.0	0.0	1.0
Total Delay	9.8		3.0	10.9	9.0
LOS	A		A	B	A
Approach Delay	9.8		3.0	9.4	
Approach LOS	A		A	A	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 46 (46%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 50
Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 8.8 — Intersection LOS: A
Intersection Capacity Utilization 68.4% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 13: NE 13 ST & NE 2 AVE



Modified 2030
13: NE 13 ST & NE 2 AVE

3/23/2013

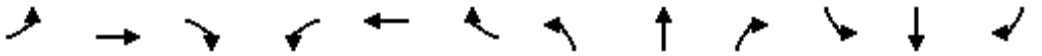
Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	735	269	311	1182
v/c Ratio	0.38	0.16	0.33	0.73
Control Delay	9.8	3.0	10.9	7.9
Queue Delay	0.0	0.0	0.0	1.0
Total Delay	9.8	3.0	10.9	9.0
Queue Length 50th (ft)	64	23	93	172
Queue Length 95th (ft)	84	29	m79	m103
Internal Link Dist (ft)	450	319	403	
Turn Bay Length (ft)				
Base Capacity (vph)	1925	1678	937	1623
Starvation Cap Reductn	0	0	0	213
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.16	0.33	0.84

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified 2030
13: NE 13 ST & NE 2 AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	161	402	113	9	238	0	0	286	1087
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	4.0
Lane Util. Factor					0.91			0.95			1.00	0.88
Frt					0.97			1.00			1.00	0.85
Flt Protected					0.99			1.00			1.00	1.00
Satd. Flow (prot)					4736			3415			1801	2694
Flt Permitted					0.99			0.94			1.00	1.00
Satd. Flow (perm)					4736			3225			1801	2694
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	175	437	123	10	259	0	0	311	1182
RTOR Reduction (vph)	0	0	0	0	31	0	0	0	0	0	0	222
Lane Group Flow (vph)	0	0	0	0	704	0	0	269	0	0	311	960
Turn Type				Perm			Perm					Perm
Protected Phases					8			2			6	
Permitted Phases				8			2					6
Actuated Green, G (s)					40.0			52.0			52.0	52.0
Effective Green, g (s)					40.0			52.0			52.0	52.0
Actuated g/C Ratio					0.40			0.52			0.52	0.52
Clearance Time (s)					4.0			4.0			4.0	4.0
Lane Grp Cap (vph)					1894			1677			937	1401
v/s Ratio Prot											0.17	
v/s Ratio Perm					0.15			0.08				c0.36
v/c Ratio					0.37			0.16			0.33	0.69
Uniform Delay, d1					21.1			12.6			13.9	17.9
Progression Factor					0.47			0.23			0.76	0.71
Incremental Delay, d2					0.5			0.2			0.1	0.3
Delay (s)					10.4			3.0			10.7	12.9
Level of Service					B			A			B	B
Approach Delay (s)		0.0			10.4			3.0			12.5	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Modified 2030
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	9	452	195	948
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	34.0	34.0	34.0	66.0
Total Split (%)	34.0%	34.0%	34.0%	66.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		20.9	20.9	71.1
Actuated g/C Ratio		0.21	0.21	0.71
v/c Ratio		0.74	0.38	0.35
Control Delay		40.8	29.8	0.5
Queue Delay		0.0	0.0	0.0
Total Delay		40.8	29.8	0.5
LOS		D	C	A
Approach Delay		40.8	29.8	0.5
Approach LOS		D	C	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 70 (70%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: NW 14 ST & NE 1st AVE

Modified 2030
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	501	275	1204
v/c Ratio	0.74	0.38	0.35
Control Delay	40.8	29.8	0.5
Queue Delay	0.0	0.0	0.0
Total Delay	40.8	29.8	0.5
Queue Length 50th (ft)	141	50	1
Queue Length 95th (ft)	183	m41	2
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	972	1020	3437
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.52	0.27	0.35

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified 2030
42: NW 14 ST & NE 1st AVE

3/23/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	452	0	0	195	58	1	948	159	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.97			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3418			3304			4810				
Flt Permitted		0.95			1.00			1.00				
Satd. Flow (perm)		3239			3304			4810				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	491	0	0	212	63	1	1030	173	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	501	0	0	243	0	0	1186	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		20.9			20.9			71.1				
Effective Green, g (s)		20.9			20.9			71.1				
Actuated g/C Ratio		0.21			0.21			0.71				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		677			691			3420				
v/s Ratio Prot					0.07							
v/s Ratio Perm		c0.15						0.25				
v/c Ratio		0.74			0.35			0.35				
Uniform Delay, d1		37.0			33.8			5.5				
Progression Factor		0.92			1.04			0.04				
Incremental Delay, d2		4.3			0.1			0.2				
Delay (s)		38.4			35.2			0.4				
Level of Service		D			D			A				
Approach Delay (s)		38.4			35.2			0.4			0.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

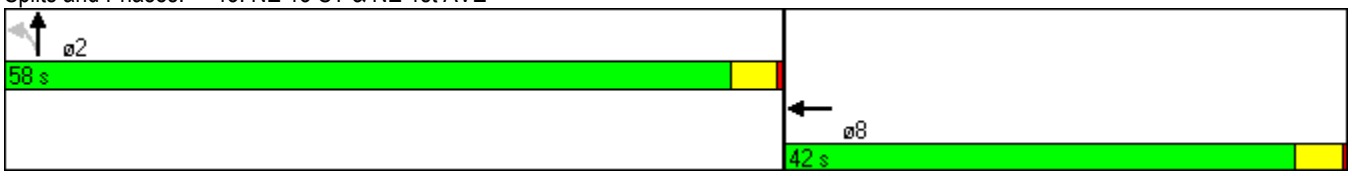
Modified 2030
43: NE 13 ST & NE 1st AVE

3/23/2013

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	1424	1202	1030
Turn Type		Perm	
Protected Phases	8		2
Permitted Phases		2	
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	42.0	58.0	58.0
Total Split (%)	42.0%	58.0%	58.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	38.0	54.0	54.0
Actuated g/C Ratio	0.38	0.54	0.54
v/c Ratio	0.83	0.73	0.61
Control Delay	35.3	12.0	11.1
Queue Delay	0.3	1.2	0.8
Total Delay	35.6	13.2	11.9
LOS	D	B	B
Approach Delay	35.6		12.6
Approach LOS	D		B

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 52 (52%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 50	
Control Type: Pretimed	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 78.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE



Modified 2030
43: NE 13 ST & NE 1st AVE

3/23/2013

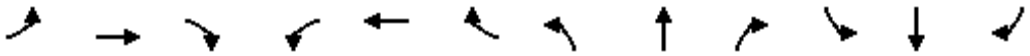
Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	1555	1307	1120
v/c Ratio	0.83	0.73	0.61
Control Delay	35.3	12.0	11.1
Queue Delay	0.3	1.2	0.8
Total Delay	35.6	13.2	11.9
Queue Length 50th (ft)	334	145	126
Queue Length 95th (ft)	402	m194	m167
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	1867	1795	1847
Starvation Cap Reductn	0	263	394
Spillback Cap Reductn	55	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.86	0.85	0.77

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified 2030
43: NE 13 ST & NE 1st AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1424	6	1202	1030	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.91		0.97	0.95				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4912		3319	3421				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4912		3319	3421				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1548	7	1307	1120	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	3	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1554	0	1304	1120	0	0	0	0
Turn Type							Perm					
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					38.0		54.0	54.0				
Effective Green, g (s)					38.0		54.0	54.0				
Actuated g/C Ratio					0.38		0.54	0.54				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					1867		1792	1847				
v/s Ratio Prot					c0.32			0.33				
v/s Ratio Perm							c0.39					
v/c Ratio					0.83		0.73	0.61				
Uniform Delay, d1					28.1		17.4	15.7				
Progression Factor					1.12		0.61	0.65				
Incremental Delay, d2					3.5		1.2	0.7				
Delay (s)					34.9		11.8	11.0				
Level of Service					C		B	B				
Approach Delay (s)		0.0			34.9			11.4			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Modified 2030
46: NW 14 ST & N MIAMI AVE

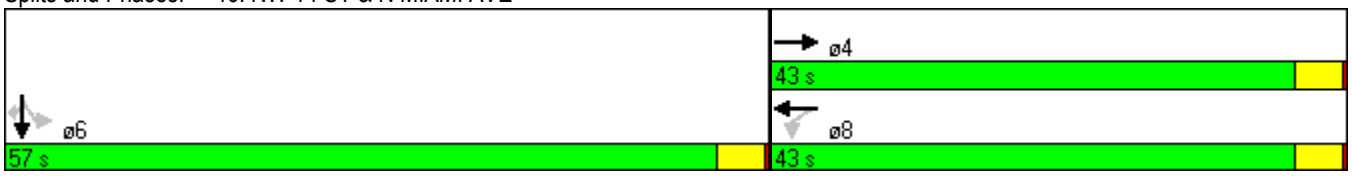
3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	137	155	34	274	9
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	43.0	43.0	43.0	57.0	57.0
Total Split (%)	43.0%	43.0%	43.0%	57.0%	57.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	20.6	20.6	20.6	71.4	71.4
Actuated g/C Ratio	0.21	0.21	0.21	0.71	0.71
v/c Ratio	0.29	0.77	0.10	0.27	0.01
Control Delay	14.7	69.8	24.1	6.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	69.8	24.1	6.2	3.6
LOS	B	E	C	A	A
Approach Delay	14.7		61.5	6.2	
Approach LOS	B		E	A	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 78 (78%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 18.5 Intersection LOS: B
Intersection Capacity Utilization 41.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 46: NW 14 ST & N MIAMI AVE



Modified 2030
46: NW 14 ST & N MIAMI AVE

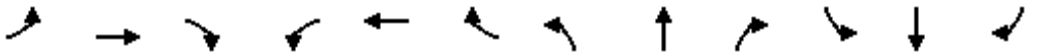
3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	208	168	37	647	10
v/c Ratio	0.29	0.77	0.10	0.27	0.01
Control Delay	14.7	69.8	24.1	6.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	69.8	24.1	6.2	3.6
Queue Length 50th (ft)	46	81	10	66	0
Queue Length 95th (ft)	66	82	17	123	6
Internal Link Dist (ft)	1337		578	379	
Turn Bay Length (ft)					
Base Capacity (vph)	1313	412	702	2379	1096
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	1	0	0	95	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.41	0.05	0.28	0.01

Intersection Summary

Modified 2030
46: NW 14 ST & N MIAMI AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	137	54	155	34	0	0	0	0	321	274	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.96		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.97	1.00
Satd. Flow (prot)		3276		1711	1801						3331	1531
Flt Permitted		1.00		0.59	1.00						0.97	1.00
Satd. Flow (perm)		3276		1057	1801						3331	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	149	59	168	37	0	0	0	0	349	298	10
RTOR Reduction (vph)	0	47	0	0	0	0	0	0	0	0	0	3
Lane Group Flow (vph)	0	161	0	168	37	0	0	0	0	0	647	7
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		20.6		20.6	20.6						71.4	71.4
Effective Green, g (s)		20.6		20.6	20.6						71.4	71.4
Actuated g/C Ratio		0.21		0.21	0.21						0.71	0.71
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		675		218	371						2378	1093
v/s Ratio Prot		0.05			0.02							
v/s Ratio Perm				c0.16							0.19	0.00
v/c Ratio		0.24		0.77	0.10						0.27	0.01
Uniform Delay, d1		33.2		37.5	32.2						5.1	4.1
Progression Factor		0.62		1.31	0.81						1.00	1.00
Incremental Delay, d2		0.2		15.1	0.1						0.3	0.0
Delay (s)		20.7		64.2	26.3						5.4	4.1
Level of Service		C		E	C						A	A
Approach Delay (s)		20.7			57.4			0.0			5.3	
Approach LOS		C			E			A			A	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2040 Peak Period

Modified_2040
9: NW 14 ST & NE 2 AVE

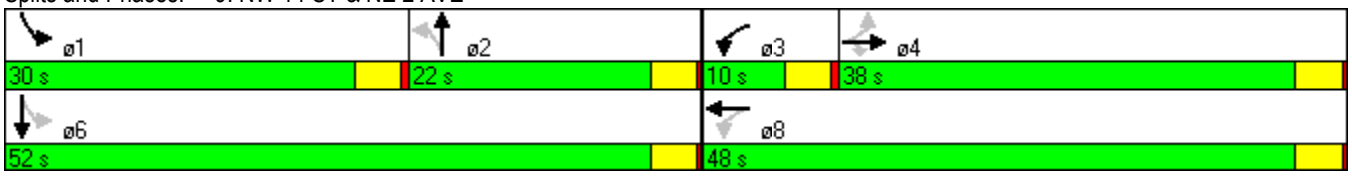
3/24/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	11	315	381	236	82	24	321	262	971
Turn Type	Perm		Perm	pm+pt		Perm		pm+pt	
Protected Phases		4		3	8		2	1	6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	20.0	20.0	20.0	8.0	20.0
Total Split (s)	38.0	38.0	38.0	10.0	48.0	22.0	22.0	30.0	52.0
Total Split (%)	38.0%	38.0%	38.0%	10.0%	48.0%	22.0%	22.0%	30.0%	52.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead		Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes	Yes	Yes	
Recall Mode	Max	Max	Max	None	Min	C-Min	C-Min	None	C-Max
Act Effct Green (s)		34.0	34.0	44.0	44.0		27.9	48.0	48.0
Actuated g/C Ratio		0.34	0.34	0.44	0.44		0.28	0.48	0.48
v/c Ratio		0.59	0.73	0.81	0.36		0.56	0.61	0.78
Control Delay		37.2	37.6	44.4	16.2		22.8	22.5	25.2
Queue Delay		0.0	0.0	4.4	0.0		0.0	0.0	0.0
Total Delay		37.2	37.6	48.8	16.2		22.8	22.5	25.2
LOS		D	D	D	B		C	C	C
Approach Delay		37.4			31.6		22.8		24.7
Approach LOS		D			C		C		C

Intersection Summary

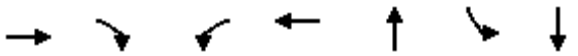
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 28.5 Intersection LOS: C
Intersection Capacity Utilization 90.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 9: NW 14 ST & NE 2 AVE



Modified_2040
9: NW 14 ST & NE 2 AVE

3/24/2013



Lane Group	EBT	EBR	WBL	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	354	414	257	286	441	285	1257
v/c Ratio	0.59	0.73	0.81	0.36	0.56	0.61	0.78
Control Delay	37.2	37.6	44.4	16.2	22.8	22.5	25.2
Queue Delay	0.0	0.0	4.4	0.0	0.0	0.0	0.0
Total Delay	37.2	37.6	48.8	16.2	22.8	22.5	25.2
Queue Length 50th (ft)	224	211	103	53	59	109	330
Queue Length 95th (ft)	316	299	m#147	m94	132	171	418
Internal Link Dist (ft)	474			440	403		346
Turn Bay Length (ft)			125				
Base Capacity (vph)	604	568	319	790	788	576	1618
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	1	26	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.73	0.88	0.36	0.56	0.49	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Modified_2040
9: NW 14 ST & NE 2 AVE

3/24/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	315	381	236	82	181	24	321	61	262	971	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95		1.00	0.95	
Frt		1.00	0.85	1.00	0.90			0.98		1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1798	1531	1711	1615			3335		1711	3339	
Flt Permitted		0.99	1.00	0.32	1.00			0.83		0.33	1.00	
Satd. Flow (perm)		1777	1531	568	1615			2781		595	3339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	342	414	257	89	197	26	349	66	285	1055	202
RTOR Reduction (vph)	0	0	48	0	80	0	0	12	0	0	16	0
Lane Group Flow (vph)	0	354	366	257	206	0	0	429	0	285	1241	0
Turn Type	Perm		Perm	pm+pt			Perm			pm+pt		
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)		34.0	34.0	44.0	44.0			27.9		48.0	48.0	
Effective Green, g (s)		34.0	34.0	44.0	44.0			27.9		48.0	48.0	
Actuated g/C Ratio		0.34	0.34	0.44	0.44			0.28		0.48	0.48	
Clearance Time (s)		4.0	4.0	4.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		604	521	319	711			776		465	1603	
v/s Ratio Prot				c0.05	0.13					0.10	c0.37	
v/s Ratio Perm		0.20	0.24	c0.31				0.15		0.20		
v/c Ratio		0.59	0.70	0.81	0.29			0.55		0.61	0.77	
Uniform Delay, d1		27.2	28.6	25.5	18.0			30.7		17.1	21.5	
Progression Factor		1.22	1.27	1.38	1.67			0.64		1.00	1.00	
Incremental Delay, d2		3.3	6.3	9.8	0.2			2.7		2.4	3.7	
Delay (s)		36.4	42.7	44.8	30.3			22.5		19.5	25.2	
Level of Service		D	D	D	C			C		B	C	
Approach Delay (s)		39.8			37.1			22.5			24.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	29.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Modified_2040
13: NE 13 ST & NE 2 AVE

3/23/2013

Lane Group	WBT	NBL	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	465	11	275	331	1258
Turn Type		Perm			Perm
Protected Phases	8		2	6	
Permitted Phases		2			6
Detector Phase	8	2	2	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	30.0	70.0	70.0	70.0	70.0
Total Split (%)	30.0%	70.0%	70.0%	70.0%	70.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	Max	Max
Act Effct Green (s)	26.0		66.0	66.0	66.0
Actuated g/C Ratio	0.26		0.66	0.66	0.66
v/c Ratio	0.67		0.15	0.30	0.75
Control Delay	35.2		6.0	6.0	9.8
Queue Delay	0.0		0.0	0.0	1.4
Total Delay	35.2		6.0	6.0	11.2
LOS	D		A	A	B
Approach Delay	35.2		6.0	10.1	
Approach LOS	D		A	B	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 58 (58%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.0 — Intersection LOS: B
Intersection Capacity Utilization 77.6% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 13: NE 13 ST & NE 2 AVE

Modified_2040
13: NE 13 ST & NE 2 AVE

3/23/2013

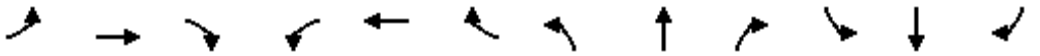
Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	850	311	360	1367
v/c Ratio	0.67	0.15	0.30	0.75
Control Delay	35.2	6.0	6.0	9.8
Queue Delay	0.0	0.0	0.0	1.4
Total Delay	35.2	6.0	6.0	11.2
Queue Length 50th (ft)	161	52	74	289
Queue Length 95th (ft)	m203	63	m89	m286
Internal Link Dist (ft)	450	319	403	
Turn Bay Length (ft)				
Base Capacity (vph)	1261	2123	1189	1827
Starvation Cap Reductn	0	0	0	259
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.67	0.15	0.30	0.87

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified_2040
13: NE 13 ST & NE 2 AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	186	465	132	11	275	0	0	331	1258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0			4.0	4.0
Lane Util. Factor					0.91			0.95			1.00	0.88
Frt					0.97			1.00			1.00	0.85
Flt Protected					0.99			1.00			1.00	1.00
Satd. Flow (prot)					4735			3415			1801	2694
Flt Permitted					0.99			0.94			1.00	1.00
Satd. Flow (perm)					4735			3216			1801	2694
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	202	505	143	12	299	0	0	360	1367
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	0	49
Lane Group Flow (vph)	0	0	0	0	820	0	0	311	0	0	360	1318
Turn Type				Perm			Perm					Perm
Protected Phases					8			2			6	
Permitted Phases				8			2					6
Actuated Green, G (s)					26.0			66.0			66.0	66.0
Effective Green, g (s)					26.0			66.0			66.0	66.0
Actuated g/C Ratio					0.26			0.66			0.66	0.66
Clearance Time (s)					4.0			4.0			4.0	4.0
Lane Grp Cap (vph)					1231			2123			1189	1778
v/s Ratio Prot											0.20	
v/s Ratio Perm					0.17			0.10				c0.49
v/c Ratio					0.67			0.15			0.30	0.74
Uniform Delay, d1					33.1			6.4			7.2	11.3
Progression Factor					1.03			0.91			0.80	0.92
Incremental Delay, d2					2.5			0.1			0.1	0.3
Delay (s)					36.6			5.9			5.8	10.6
Level of Service					D			A			A	B
Approach Delay (s)		0.0			36.6			5.9			9.6	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Modified_2040
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBL	EBT	WBT	NBT
Lane Configurations				
Volume (vph)	11	523	226	1097
Turn Type	Perm			
Protected Phases		4	8	2
Permitted Phases	4			
Detector Phase	4	4	8	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	31.0	31.0	31.0	69.0
Total Split (%)	31.0%	31.0%	31.0%	69.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	Min	Min	Min	C-Max
Act Effct Green (s)		22.9	22.9	69.1
Actuated g/C Ratio		0.23	0.23	0.69
v/c Ratio		0.78	0.41	0.42
Control Delay		40.8	32.0	0.4
Queue Delay		0.0	0.0	0.2
Total Delay		40.8	32.0	0.6
LOS		D	C	A
Approach Delay		40.8	32.0	0.6
Approach LOS		D	C	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 68 (68%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 54.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 42: NW 14 ST & NE 1st AVE

Modified_2040
42: NW 14 ST & NE 1st AVE

3/23/2013

Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	580	319	1394
v/c Ratio	0.78	0.41	0.42
Control Delay	40.8	32.0	0.4
Queue Delay	0.0	0.0	0.2
Total Delay	40.8	32.0	0.6
Queue Length 50th (ft)	137	67	2
Queue Length 95th (ft)	224	m60	3
Internal Link Dist (ft)	578	474	423
Turn Bay Length (ft)			
Base Capacity (vph)	873	920	3344
Starvation Cap Reductn	0	0	838
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.66	0.35	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified_2040
42: NW 14 ST & NE 1st AVE 3/23/2013

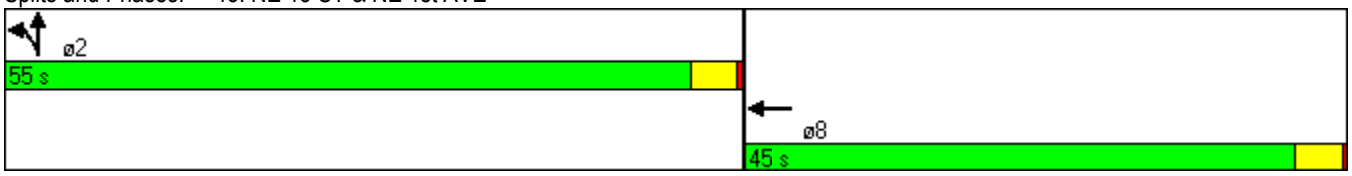
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	523	0	0	226	67	1	1097	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			0.95			0.91				
Frt		1.00			0.97			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		3418			3304			4809				
Flt Permitted		0.95			1.00			1.00				
Satd. Flow (perm)		3234			3304			4809				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	568	0	0	246	73	1	1192	201	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	580	0	0	290	0	0	1374	0	0	0	0
Turn Type	Perm						Perm					
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		22.9			22.9			69.1				
Effective Green, g (s)		22.9			22.9			69.1				
Actuated g/C Ratio		0.23			0.23			0.69				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		741			757			3323				
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.18						0.29				
v/c Ratio		0.78			0.38			0.41				
Uniform Delay, d1		36.2			32.6			6.7				
Progression Factor		0.91			1.12			0.02				
Incremental Delay, d2		5.3			0.1			0.3				
Delay (s)		38.4			36.7			0.4				
Level of Service		D			D			A				
Approach Delay (s)		38.4			36.7			0.4			0.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBT	NBL	NBT
Lane Configurations			
Volume (vph)	1647	1390	1191
Turn Type		Split	
Protected Phases	8	2	2
Permitted Phases			
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	45.0	55.0	55.0
Total Split (%)	45.0%	55.0%	55.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	41.0	51.0	51.0
Actuated g/C Ratio	0.41	0.51	0.51
v/c Ratio	0.71	0.89	0.74
Control Delay	25.6	18.7	15.6
Queue Delay	6.4	20.9	3.6
Total Delay	32.0	39.6	19.2
LOS	C	D	B
Approach Delay	32.0		30.2
Approach LOS	C		C

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 58 (58%), Referenced to phase 2:NBTL and 6:, Start of Green	
Natural Cycle: 50	
Control Type: Pretimed	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 43: NE 13 ST & NE 1st AVE



Modified_2040
43: NE 13 ST & NE 1st AVE

3/23/2013

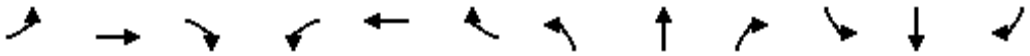
Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	1799	1511	1295
v/c Ratio	0.71	0.89	0.74
Control Delay	25.6	18.7	15.6
Queue Delay	6.4	20.9	3.6
Total Delay	32.0	39.6	19.2
Queue Length 50th (ft)	261	229	201
Queue Length 95th (ft)	324	m231	m203
Internal Link Dist (ft)	485		310
Turn Bay Length (ft)		125	
Base Capacity (vph)	2538	1695	1745
Starvation Cap Reductn	0	236	353
Spillback Cap Reductn	691	1	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.97	1.04	0.93

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Modified_2040
43: NE 13 ST & NE 1st AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1647	8	1390	1191	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0				
Lane Util. Factor					0.86		0.97	0.95				
Frt					1.00		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					6190		3319	3421				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					6190		3319	3421				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1790	9	1511	1295	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	2	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1798	0	1509	1295	0	0	0	0
Turn Type							Split					
Protected Phases					8		2	2				
Permitted Phases												
Actuated Green, G (s)					41.0		51.0	51.0				
Effective Green, g (s)					41.0		51.0	51.0				
Actuated g/C Ratio					0.41		0.51	0.51				
Clearance Time (s)					4.0		4.0	4.0				
Lane Grp Cap (vph)					2538		1693	1745				
v/s Ratio Prot					c0.29		c0.45	0.38				
v/s Ratio Perm												
v/c Ratio					0.71		0.89	0.74				
Uniform Delay, d1					24.5		22.0	19.3				
Progression Factor					0.99		0.73	0.75				
Incremental Delay, d2					1.2		2.0	0.7				
Delay (s)					25.4		18.0	15.3				
Level of Service					C		B	B				
Approach Delay (s)		0.0			25.4			16.7			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Modified_2040
46: NW 14 ST & N MIAMI AVE

3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Configurations					
Volume (vph)	158	179	40	316	11
Turn Type		Perm			Perm
Protected Phases	4		8	6	
Permitted Phases		8			6
Detector Phase	4	8	8	6	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	73.0	73.0	73.0	27.0	27.0
Total Split (%)	73.0%	73.0%	73.0%	27.0%	27.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Min	Min	Min	C-Max	C-Max
Act Effct Green (s)	25.4	25.4	25.4	66.6	66.6
Actuated g/C Ratio	0.25	0.25	0.25	0.67	0.67
v/c Ratio	0.27	0.76	0.09	0.34	0.01
Control Delay	24.7	68.5	41.8	9.0	4.9
Queue Delay	0.0	0.0	0.0	0.1	0.0
Total Delay	24.7	68.5	41.8	9.1	4.9
LOS	C	E	D	A	A
Approach Delay	24.7		63.7	9.0	
Approach LOS	C		E	A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 74 (74%), Referenced to phase 2: and 6:SBTL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 22.6	Intersection LOS: C
Intersection Capacity Utilization 46.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 46: NW 14 ST & N MIAMI AVE

Modified_2040
46: NW 14 ST & N MIAMI AVE

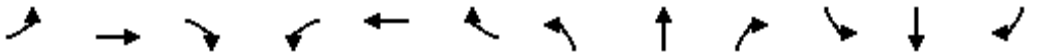
3/23/2013

Lane Group	EBT	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	239	195	43	747	12
v/c Ratio	0.27	0.76	0.09	0.34	0.01
Control Delay	24.7	68.5	41.8	9.0	4.9
Queue Delay	0.0	0.0	0.0	0.1	0.0
Total Delay	24.7	68.5	41.8	9.1	4.9
Queue Length 50th (ft)	54	133	29	95	0
Queue Length 95th (ft)	40	206	65	183	8
Internal Link Dist (ft)	1337		578	379	
Turn Bay Length (ft)					
Base Capacity (vph)	2283	702	1243	2219	1024
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	59	17	0	302	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.28	0.03	0.39	0.01

Intersection Summary

Modified_2040
46: NW 14 ST & N MIAMI AVE

3/23/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	158	62	179	40	0	0	0	0	372	316	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0						4.0	4.0
Lane Util. Factor		0.95		1.00	1.00						0.95	1.00
Frt		0.96		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						0.97	1.00
Satd. Flow (prot)		3277		1711	1801						3331	1531
Flt Permitted		1.00		0.57	1.00						0.97	1.00
Satd. Flow (perm)		3277		1017	1801						3331	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	172	67	195	43	0	0	0	0	404	343	12
RTOR Reduction (vph)	0	50	0	0	0	0	0	0	0	0	0	4
Lane Group Flow (vph)	0	189	0	195	43	0	0	0	0	0	747	8
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		25.4		25.4	25.4						66.6	66.6
Effective Green, g (s)		25.4		25.4	25.4						66.6	66.6
Actuated g/C Ratio		0.25		0.25	0.25						0.67	0.67
Clearance Time (s)		4.0		4.0	4.0						4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0						3.0	3.0
Lane Grp Cap (vph)		832		258	457						2218	1020
v/s Ratio Prot		0.06			0.02							
v/s Ratio Perm				c0.19							0.22	0.01
v/c Ratio		0.23		0.76	0.09						0.34	0.01
Uniform Delay, d1		29.5		34.4	28.5						7.2	5.6
Progression Factor		1.24		1.55	1.69						1.00	1.00
Incremental Delay, d2		0.1		11.4	0.1						0.4	0.0
Delay (s)		36.7		64.8	48.2						7.6	5.6
Level of Service		D		E	D						A	A
Approach Delay (s)		36.7			61.8			0.0			7.6	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX G – PORT OF MIAMI TRAFFIC ASSUMPTIONS REVIEW

C H Perez and Associates Consulting Engineers, Inc.
9594 NW 41 Street, Suite 201
Doral, Florida 33178

ENGINEERS AND SURVEYORS DEDICATED TO TRANSPORTATION

CA 25976 / LB 7360

C H Perez & Associates
Engineers • Planners • Surveyors

Technical Memorandum - DRAFT November 2011

TO: Joe L. Gómez, P.E. / T.Y. Lin Project Manager

FROM: Carlos Francis, P.E., PTOE /CHP Project Manager

DATE: November 2, 2011

SUBJECT: **I-395 CORSIM Reanalysis – Review of Port of Miami Traffic**
Section 87200,
MP 11.732 to MP 13.048

Introduction

C. H. Perez & Associates Consulting Engineers, Inc (P&A) has reviewed the IMR previously prepared by Metric Engineering and documents received from the Port of Miami in relation to future traffic demand for the I-395 analysis. This review was undertaken in order to determine what adjustments if any should be made to refine the assumptions related to the traffic impact from the Port of Miami Tunnel project in the analysis. Following is a summary of the documents reviewed and the general findings from those documents:

A. I-395 IMR/PD&E – July 2009.

The only substantive reference to traffic quantities associated with the Port of Miami Tunnel is briefly described in the following sentence of Section 5.2.3 Future Traffic Volumes" (of the July 2009 IMR); "AADT along the MacArthur Bridge, just east of project's eastern limit will increase from 120,000 to 170,000 veh/day partially due to the construction of the proposed Port of Miami Tunnel". This implies that the future traffic impact of the Port of Miami Tunnel is somehow incorporated into the future volumes although a detailed breakdown of port traffic is not available from the limited information provided in the IMR analysis.

B. Answers to FAQ from POMT Informational Website

1. According to a traffic analysis performed by Parsons Brinckerhoff in 2009,the existing AADT from Port of Miami is 16,000 veh/day.
2. 28% or 4,480 are cargo trucks.
3. Future volume is expected to increase to 70,000 veh/day by 2033.
4. It is anticipated that most trucks and buses and 80% of passenger vehicles traveling to and from the port will be diverted to the tunnel and the remaining 20% will continue to use the existing bridge on Port Boulevard.

C. Port of Miami Tunnel Existing Conditions Traffic Analysis Report – PB June 2009

1. Existing AADT from Port of Miami is 16,000 veh/day.

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2. Much of the information related to existing on-site circulation within the port with no focus on Origin-Destination of existing traffic generated by the Port.

D. Port of Miami Traffic & Demand Study – Ports & Maritime Economics, May 2006

Based on medium growth projections, the following Average Daily Vehicular Traffic volumes on the Port Boulevard Bridge were forecasted as noted below:

- 2006 – 26,817 veh/day
- 2011 – 31,676 veh/day
- 2020 – 42,354 veh/day
- 2030 – 57,950 veh/day
- 2035 – 67,618 veh/day

No O-D information of Port trips was contained in this report. The forecasts provide a breakdown of the proportion of vehicles in each category that make up the total AADTs including Motor Cycles, Passenger Cars, Taxis, Buses, 2-Axle Trucks and heavy trucks.

E. TUNNEL TOLLS - OPI version - Attachment A - Ports & Maritime Economics, May 2006

This document appears to be associated with the Ports & Maritime Economics, May 2006 study and is focused on revenue estimates instead of traffic generation.

F. Excerpt Port of Miami 2035 Master Plan, Cruise and Cargo Information

1. Provides information on number of passengers and cruise calls from 2010 to 2035.
2. Provides information on number of TEUs from 2010 to 2035.

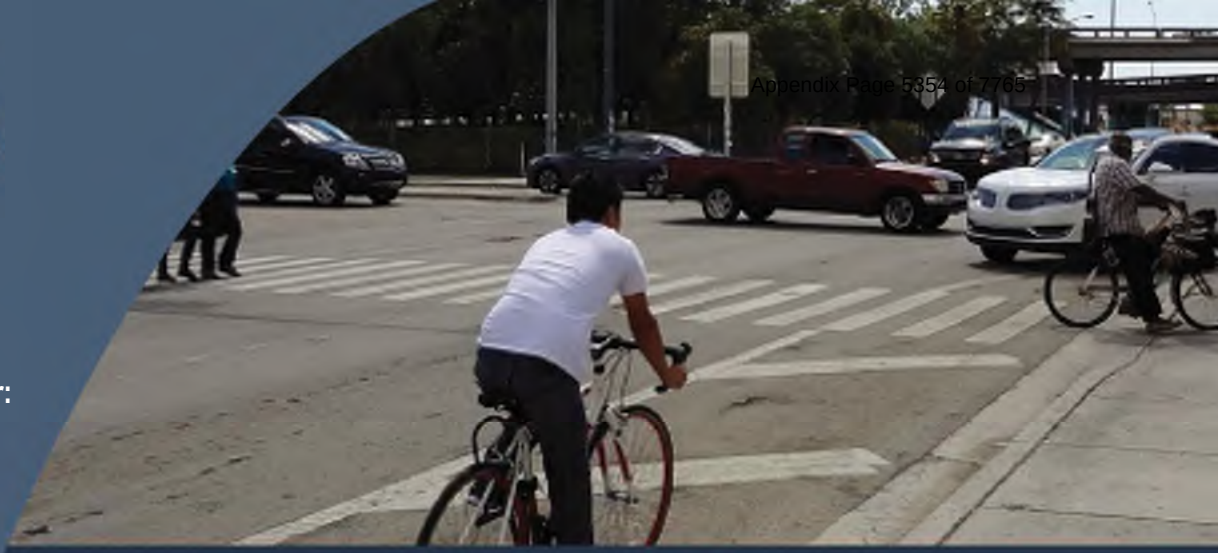
No explicit information on AADT projections were provided in this report.

Comments

According to the original information contained in the IMR, the increase in traffic on the west end of the MacArthur Bridge due to the port of Miami tunnel would be approximately 50,000 vehicles per day. Two of the other sources reviewed (i.e. "B" and "D"), estimate that future volume from the port (all modes) will increase to approximately 70,000 vehicles per day by the mid 2030's. In applying the projected 80%/20% split between new tunnel and existing port bridge traffic that is cited in reference "B", it appears that the 50,000 vehicles per day increase noted in the original IMR is within the general range of future traffic impacts from the Port of Miami Tunnel on the MacArthur Bridge. Accordingly, the use of the input traffic volumes from the original IMR analysis is deemed adequate for the limited scope of the reanalysis being performed which is to compare the changes in traffic impact resulting from the new alternative.

Appendix E

STATE ROAD 90/SW 7/8 STREET PD&E & IMR STUDY



Financial Management Number: 432639-6-22-01

Federal Aid Project Number: 0202-054-P

Efficient Transportation Decision Making Number: 14230

January, 2019

Draft Interchange Modification Report (IMR)

SW 8th Street / SW 7th Street PD&E Study from SR 9/SW 27th Avenue to SR 5/US-1/Brickell Avenue

SR 90 / SW 8th Street & SW 7th Street
PROJECT DEVELOPMENT & ENVIRONMENT STUDY

INTERCHANGE JUSTIFICATION REPORT (IMR)

Financial Project ID: 432639-6-22-02
FAP No.: 0202054P / ETDM No.: 14230
Miami-Dade County

Prepared For:
FDOT District Six
1000 NW 111 Street
Miami, FL 33172

January, 2019

SR 90/SW 8th Street and SW 7th Street
Project Development and Environment Study
Interchange Modification Report
FM #: 432639-6-22-02; FAP #: 0202054P; ETDM #: 14230

Florida Department of Transportation
Determination of Safety, Operational and Engineering Acceptability

Acceptance of this document indicates successful completion of the review and determination of the safety, operational and engineering acceptability of the Interchange Access Request. Approval of the access request is contingent upon compliance with applicable Federal requirements, specifically the National Environmental Policy Act (NEPA) or Department's Project Development and Environment (PD&E) Procedures. Completion of the NEPA/PD&E process is considered approval of the project location design concept described in the environmental document.

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PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with RS&H, Inc., authorized under Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes, Certificate of Authorization (CA) No. 2294, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I prepared or approved the evaluation, findings, opinions, conclusions, or technical advice herby reported for:

Financial Project ID:	432639-6-22-02
Federal Aid Project No.:	0202054P
ETDM No.:	14230
Project:	SR 90/SW 8th Street and SW 7th Street Project Development and Environment (PD&E) Study from SR 9/SW 27th Avenue to SR 5/US 1/Brickell Avenue Design Traffic Technical Memorandum (DTTM)
County:	Miami-Dade County
FDOT Project Manager:	Bao-Ying Wang, P.E.

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience

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Interchange Justification Report

SR 90/ SW 8th Street and SW 7th Street PD&E Study

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1.0 INTRODUCTION

1.1 Project Description

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for SR 90/US 41/SW 8th Street/SW 7th Street, located in Miami-Dade County, Florida. The limits of the PD&E Study extend along the one-way pair of SW 8th Street and SW 7th Street from SR 9/SW 27th Avenue (western limit) to SR 5/US 1/Brickell Avenue (eastern limit). The limits of the project incorporate the existing interchange at I-95 and SW 8th Street and SW 7th Street. As part of the PD&E Study, the FDOT proposes to implement improvements at the I-95 interchange to increase capacity and enhance safety conditions. The proposed improvements result from a FDOT Planning Study for SW 8th Street/SW 7th Street, which examined conceptual improvements for the one-way pair arterials and corresponding improvements to the I-95 Interchange. Figure 1.1 depicts the project location.

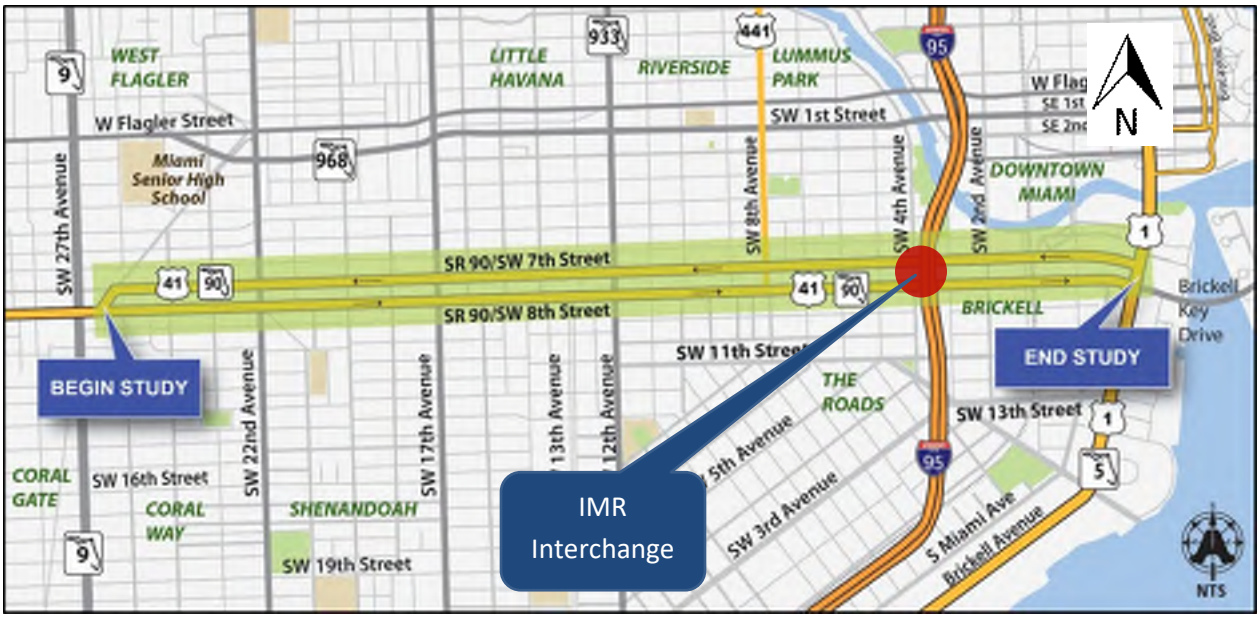
This proposed interchange modification project will improve traffic operations to address traffic spillback onto SR 9 / I-95, reduce congestion, and improve safety. The overall objectives of this project include the following elements:

- Address physical, operational and safety deficiencies existing at the interchange.
- Enhance mobility and traffic circulation consistent with the long term vision for improvements to SR 90/SW 7th Street and SR 90/SW 8th Street.
- Minimize environmental and social impacts.

The FDOT determined that the proposed interchange improvements warrant preparation of an Interchange Modification Report (IMR), in accordance with the criteria specified in the Interchange Access Request User's Guide, January 2018. This IMR will be processed through the expedited programmatic approval process, as agreed upon in the Programmatic Agreement between the Federal Highway Administration (FHWA), Florida Division and FDOT, dated April 2, 2015. The IMR provides the necessary documentation for review and determination of the safety, operational and engineering acceptability of the I-95 at SW 8th Street/SW 7th Street Interchange Modification. It will serve as the traffic operations

analysis document for the related National Environmental Policy Act (NEPA) study encompassing the interchange and the arterial improvements.

Figure 1.1: Project Location Map



1.2 Purpose and Need for Project

The purpose of this project is to develop recommendations for the proposed modifications to the SR 9 / I-95 and SR 90 /SW 8th Street and SW 7th Street interchange, as well as along the one-way pair arterials. The proposed project will improve traffic operations at the interchange and study area roadways / intersections by implementing operational and capacity improvements to meet the future travel demand projected as a result of Miami-Dade County population and employment growth. The project will further enhance safety conditions at the interchange, improve multimodal interrelationships, promote economic development by improving connectivity between I-95 and the service arterials, and enhance accommodations for bicycle and pedestrian activities. An expanded discussion of the Need for the project is included under Section 4.0 of this report.

1.3 Related Projects within the Study Area

The 2040 Long Range Transportation Plan (LRTP) Plan includes the following projects:

- I-95 from I-95 to E 2 Ave, Ramp reconstruction/ reconfiguration of I-95 ramps
- I-95 from I-95 to S Miami Ave, Ramp reconstruction/ reconfiguration of I-95 ramps
- Northeast Corridor (Biscayne) Enhanced Bus from Miami Downtown Terminal to Aventura Terminal, Incremental improvement on PTP corridor
- I-95 from US-1 to South of SR 836/I-395, Operational and capacity improvements

A review of the FDOT Five-Year Work Program identified the following projects within the project vicinity:

- 414964-8 SR 9A/I-95 (from north of SR 90/SW 8th St to south of SR 836/I-395) – Project Development and Environment Study
- 414964-7 SR 9A/I-95 (from US-1/south Dixie Hwy to south of SR 90/SW 8th St) Project Development and Environment Study
- 414964-6 SR 9A/I-95 From US 1 To Dade/Broward Line - Corridor/Subarea Planning
- 437792-1152-01 – ADA Improvements along SW 7th Street

1.4 Applicant Information

This Interchange Modification Report has been prepared for the Florida Department of Transportation, District Six. For information on the I-95 and SR 90/SW 8th Street/SW 7th Street PD&E Study and the IMR, please contact the Department's Project Manager at the following address:

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2.0 METHODOLOGY

The methodology applied for the I-95 at SR 90/US 41/SW 8th Street and SW 7th Street IMR is documented in the Methodology Letter of Understanding (MLOU), dated August 31, 2016. The MLOU was approved by FDOT District Six and FDOT Central Office, Systems Planning Office. The MLOU outlines the criteria, assumptions, processes, analyses and documentation requirements for the project. This approved MLOU is included with the IMR under Appendix A. The following summarizes some of the more prominent issues covered under the MLOU.

2.1 Area of Influence

The anticipated area of influence for the project is depicted in Figure 2.1. It incorporates the following road segments:

- I-95 from south Rickenbacker Causeway to north of NW 2nd Street. This incorporates the mainline and ramp systems connecting to SW 25th Street, Rickenbacker Causeway, Biscayne Boulevard, Miami Avenue, NW 2nd Street, SW 7th Street and SW 8th Street.
- SW 7th Street from SW 8th Avenue to South Miami Avenue. This incorporates the following intersections:
    - SW 7th Street at SW 8th Avenue
    - SW 7th Street at SW 7th Court
    - SW 7th Street at SW 6th Avenue
    - SW 7th Street at SW 5th Avenue
    - SW 7th Street at SW 4th Avenue and I-95 Southbound Off-Ramp.
    - SW 7th Street at SW 3rd Avenue
    - SW 7th Street at SW 2nd Avenue
    - SW 7th Street at SW 1st Court
    - SW 7th Street at SW 1st Avenue
    - SW 7th Street at South Miami Avenue

- SW 8th Street from SW 8th Avenue to South Miami Avenue. This incorporates the following intersections:
    - SW 8th Street at SW 8th Avenue
    - SW 8th Street at SW 7th Avenue
    - SW 8th Street at SW 6th Avenue
    - SW 8th Street at SW 5th Avenue
    - SW 8th Street at SW 4th Avenue and I-95 Southbound On-Ramp.
    - SW 8th Street at SW 3rd Avenue and I-95 Northbound On-Ramp
    - SW 8th Street at SW 2nd Avenue
    - SW 8th Street at SW 1st Court
    - SW 8th Street at SW 1st Avenue
    - SW 8th Street at South Miami Avenue

While the anticipated area of influence includes the ramps systems connecting to I-95 at adjacent interchanges, it does not include the terminal intersections at the service roads, namely: SW 25 Street, Rickenbacker Causeway, Biscayne Boulevard, Miami Avenue and NW 2nd Street.

FDOT

SR 90/SW 8th Street and SW 7th Street PD&E Study

Area of Influence Map

Figure 2.1

2.2 Analysis Years

The analysis years for the project were determined as follows:

- Existing year: 2015 (No Build)
- Opening year: 2020 (No Build + Recommended Build Alternative)
- Design year: 2040 (No Build + All Build Alternatives

2.3 Travel Demand Forecast

This study utilizes Southeast Florida Regional Planning Model (SERPM) v7. The SERPM is a regional Activity Based Model (ABM) developed and maintained by the FDOT. The SERPM is a Time of Day Model capable of producing forecasts for multiple peak and off-peak periods as well as a daily 24-hour period. The SERPM includes a 2010 Base Year and a 2040 Forecast Year. It is the adopted travel demand forecasting tool for FDOT and regional MPOs.

The travel demand forecasting process covers the area of influence for the IMR as well as the limits of the related PD&E Study along SW 7th Street and SW 8th Street. In order to maintain consistency with traffic development guidelines set forth in the FDOT PD&E Manual and the FDOT Project Traffic Forecasting Handbook, the SERPM was used to forecast future AADTs which were then converted to design traffic. The travel demand forecasting process proceed as follows:

1. **Existing Year (2015) AADT, AM and PM Peak Hour Volumes**: Existing year AADTs and peak hour volumes (AM and PM) were developed directly from 2015 field counts. The 2015 field counts were supplemented by data gathered from the prior FDOT Planning Study (2013 counts) and other traffic sources listed under Section 4 of the attached MLOU. All supplemental counts were adjusted to 2015 based on traffic growth trends analyses. Traffic volumes were checked for reasonableness, adjusted and balanced across the network.

2. **Design Year (2040) AADTs:** SERPM v7 was used to generate initial estimates of 2040 AADTs for the No Build and Build Alternatives. The AADTs generated by SERPM were checked for

reasonableness and adjusted accordingly. Checks for reasonableness included comparison of SERPM forecasted volumes against existing (2015) volumes and other traffic forecasts/growth rate estimates. These include: historical growth trends, traffic forecast from prior projects/travel demand models, and population and employment growth estimates. AADTs were adjusted, as necessary, and balanced across the network.

3. **Design Year (2040) AM and PM Hour Volumes:** Design Year (2040) AM and PM peak hour volumes were developed based on growth rate techniques. Applicable growth rates were developed for the study corridor based on a comparison of the existing year (2015) AADT and the 2040 AADT forecast, and the resultant adjustments were made consistent with reasonableness checks. The resulting growth factors were applied to the 2015 AM and PM peak hour volumes with adjustments for balanced flow. Peak hour volumes for alternative design concepts were subsequently developed by reassignment of traffic volumes based on change in interchange configuration and traffic flow pattern.

   Peak period volumes were developed for VISSIM microsimulation analysis covering 4 hours in the AM peak period and 4 hours in the PM peak period. Volumes for the peak periods were developed in 15-minute increments by factoring peak hour volumes in accordance with the flow profile from traffic counts along I-95.

4. **Opening Year (2020) AADT, AM and PM Peak Hour Volumes:** Opening year (2020) AADTs, AM and PM peak hour volumes were interpolated from the 2015 and 2040 traffic volumes.

2.4 Traffic Factors

Table 2.1 contains the traffic factors used for travel demand forecasting and operations analyses.

Table 2.1: Traffic Factors

Roadway	K(1)	D(2)	T(3)	T_f(4)	PHF(5)
I-95	8.00%	50.9%	4.5%	2.0%	0.95
SW 8th Street	9.00%	100%	7.5%	3.5%	0.95
SW 7th Street	9.00%	100%	7.5%	3.5%	0.95
Other Streets	9.00%	varies	7.5%	3.5%	0.95

Notes:

(1) K-factors based on standard K, per FDOT Traffic Online
(2) D-factors based on measured 2015 peak hour traffic distribution, subject to FDOT's recommended maximum and minimums for facility type.
(3) T-factor (T_{24}) based on assessment of 5-year historical classification counts
(4) T_f (Design Hour Truck, DHT) estimated at approximately 50% of T-factor;
(5) PHF: Existing year per measured 2015 counts; Future years = 0.95.

2.5 Operations Analysis

Traffic operations analyses were performed based on procedures specified in the Highway Capacity Manual (HCM) 2010. Calculations were performed using the Highway Capacity Software (HCS) for freeway segments - including basic freeway segments, merge areas, diverge areas and weaving segments. The HCM 2010 module in Synchro (version 9) was used for intersection level of service analysis. Synchro models were calibrated in accordance with guidelines provided in the FDOT's Traffic Analysis Handbook, March 2014. Specifically, the calibration process involved the following:

- Lost time adjustment factor was adjusted to replicate field observed queue lengths.
- In order to calculate reasonable queuing in the model, all link terminals extended at least 1,000 feet from the last node.

- 95th percentile queue lengths that are tagged with "#" or "m" were examined for the extent of queuing problems.

The calibration process was supported by observations and data gathered during field reviews. These include: typical queue lengths, delays, operating speeds, right turns on red, signal timings and pedestrian/bicycle activity.

VISSIM microsimulation models were developed for 2015 existing year (for model calibration) and for comparing the 2040 No Build and Recommended Alternative. The VISSIM models were developed in accordance with guidelines contained in the FDOT's Traffic Analysis Handbook (2014) and FHWA's Traffic Analysis Toolbox Volume III (2004). Temporal limits for traffic simulation models covered 4 hours during the AM peak period and 4 hours during the PM peak period with traffic flow rates in 15-minute increments. VISSIM model calibration included comparison of traffic volumes, speeds and visual audits. Traffic volume data, travel time data, and field observations were used in the calibration process. A detailed calibration report for the VISSIM models is included under Appendix B of the IMR. Link specific traffic flow targets used for the calibration process included the following:

- Simulated volumes within 15% of field traffic flows for more than 85% of cases where flows range from 700 veh/hr. to 2,700 veh/hr.
- Simulated volumes within 100 veh/hr. for more than 85% of cases where flows are less than 700 veh/hr.
- Simulated volumes within 400 veh/hr. for more than 85% of cases where flows are greater than 2,700 veh/hr.

Target GEH statistic were established at less than 5 for more than 85% of the links. Travel time targets within 15% (or 1 minute if higher) of the filed measured travel times for more than 85% of cases. Visual audits of the simulation were performed to confirm that the model speed-flow relationships were similar to observed conditions. In addition to average travel speeds, individual link speeds and speed-flow diagrams were used to evaluate the performance of the freeway segments.

2.6 Level of Service Standards

The project is entirely located within the Miami-Dade County Transportation Concurrency Management Area. As such, the applicable level of service standards per Miami-Dade County Comprehensive Development Master Plan are:

- I-95: LOS D for conditions without express lanes; LOS E for conditions with express lanes.
- SW 7th Street, SW 8th Street and all other roads within project limits: LOS E

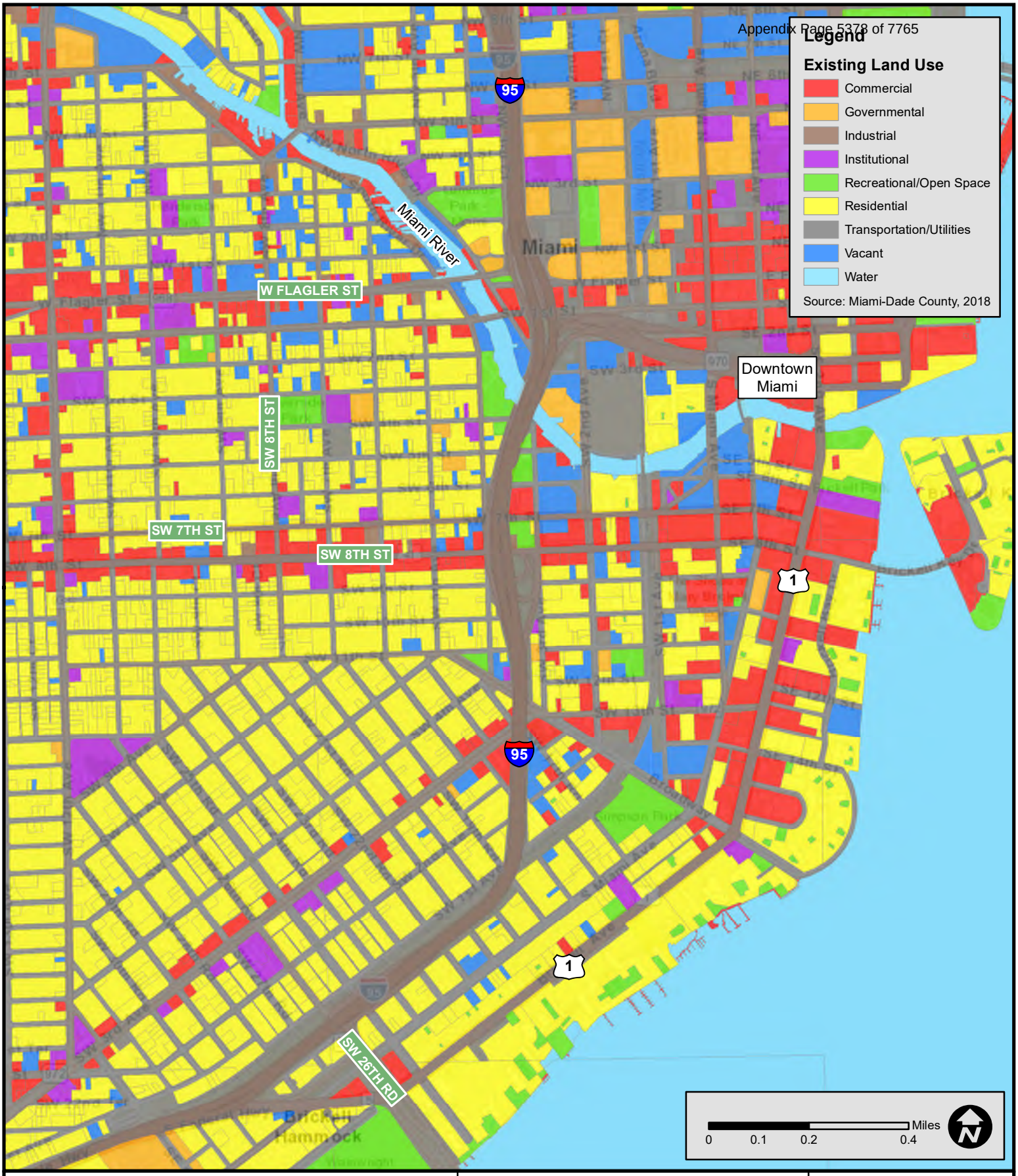
It is noted that the FDOT recommended target for roadways in urban areas is LOS D per the FDOT Quality Level of Service Handbook, 2013.

3.0 EXISTING CONDITIONS

The following sections describe conditions within the study area for the existing year 2015.

3.1 Existing Land Use

The existing land uses adjacent to the project corridor are predominantly multi-family residential and commercial (**Figure 3.1**). The land use along SW 8th Street consists of commercial uses, while SW 7th Street consists of residential areas west of I-95 and commercial use with scattered residential areas east of I-95. The residential areas within the study area are composed predominantly of multi-family buildings, with high-rise establishments located east of I-95 in the Brickell area. The commercial uses vary and include shopping plazas, food and entertainment establishments, supermarkets, pharmacies, gas stations, and car dealerships.



FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	**Existing Land Use Map**	**Figure 3.1**

3.2 Existing Road Network

The general characteristics of the roadway facilities located within the project limits are described in the sections below. The data below is based on information gathered from the FDOT's Roadway Characteristics Inventory, Straight Line Diagrams (SLDs) and field reviews conducted for the PD&E Study.

Facility: SR 9/I-95 from south Rickenbacker Causeway to north of NW 2nd Street

Facility Type: Freeway, Limited Access, SIS Facility, designated evacuation route.

Functional Classification: Urban Principal Arterial – Interstate

Access Management Classification (FDOT): Class 1

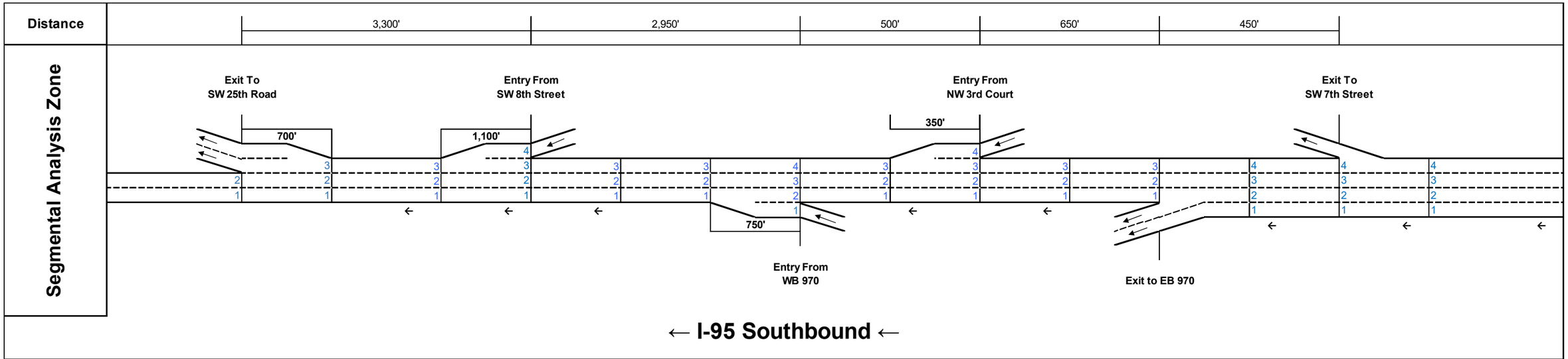
Typical Section (see lane schematic in Figure 3.2):

- Northbound I-95 typical section varies as follows:
  - South of Rickenbacker Causeway: 2 General Use (GU) lanes
  - North of Rickenbacker Causeway: 3 GU lanes
  - North of SW 8th Street: 4 GU lanes
  - North of NW 2nd Avenue: 3 GU lanes
  - North of South Miami Avenue: 5 GU lanes

- Southbound I-95 typical section varies as follows:
  - North of South Miami Avenue: 4 GU lanes
  - North of Rickenbacker Causeway: 3 GU lanes
  - South of Rickenbacker Causeway: 2 GU lanes

Median Type: Barrier wall.

Posted Speed Limit: 55 mph



FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Existing (2015) Conditions Lane Schematic	Figure 3.2

Facility: SR 90/SW 8th Street and SW 7th Street

Facility Type: Arterial

Functional Classification: Urban Principal Arterial- Other

Access Management Classification (FDOT): Class 7

Posted Speed Limit: 30 mph

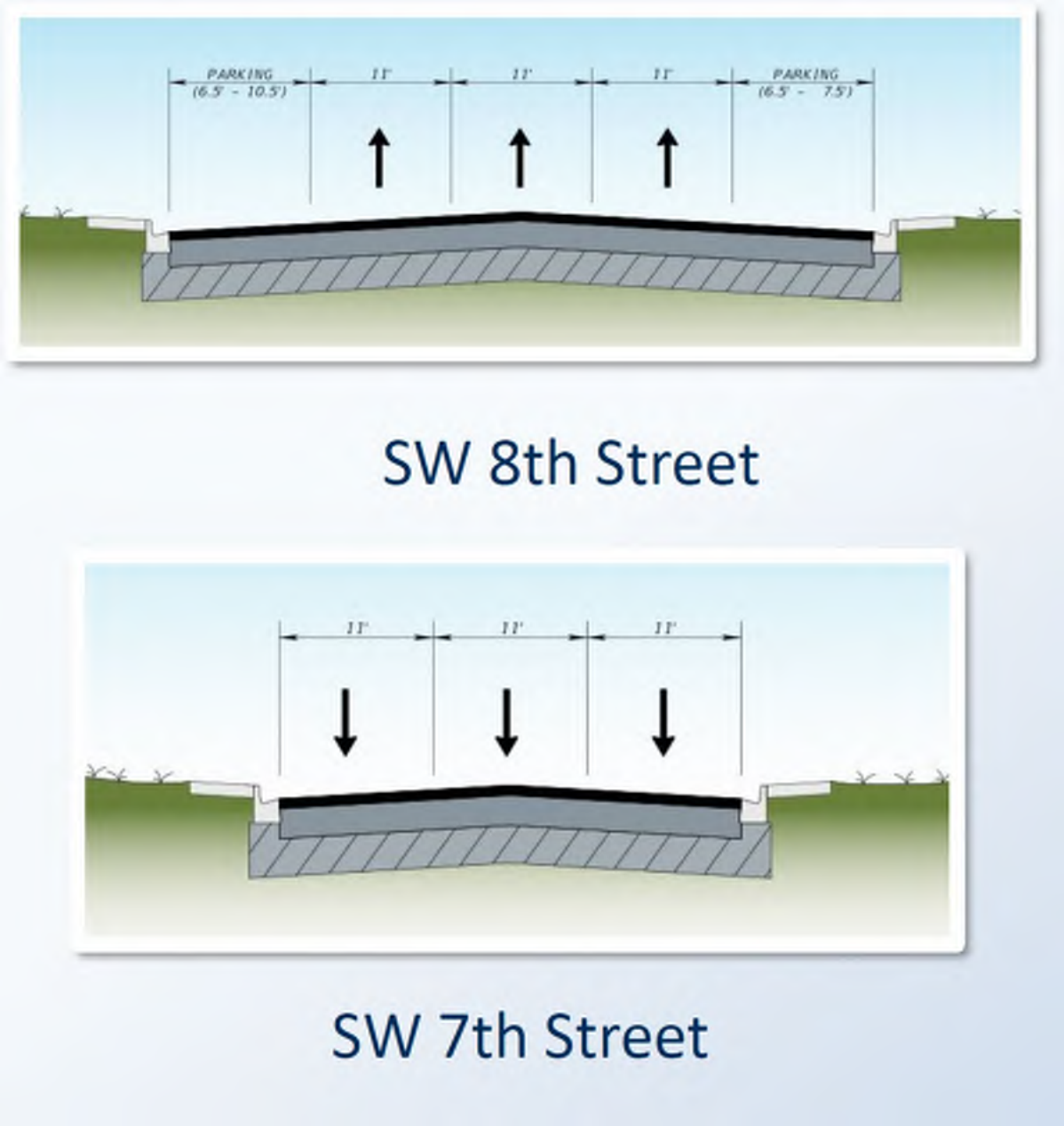
Typical Section (see Figure 3.3):

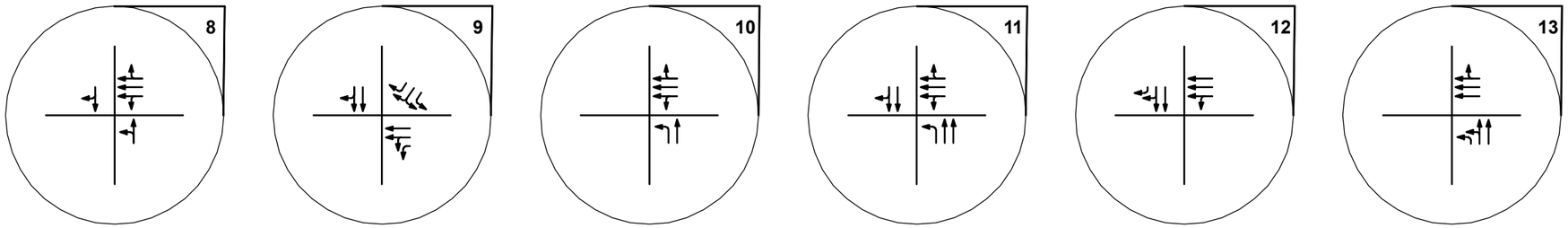
- Eastbound (SW 8th Street): 3 lanes, one-way. Typical section also includes on-street parking and sidewalks.
- Westbound (SW 7th Street): 3 lanes, one-way. Typical section also includes sidewalks.

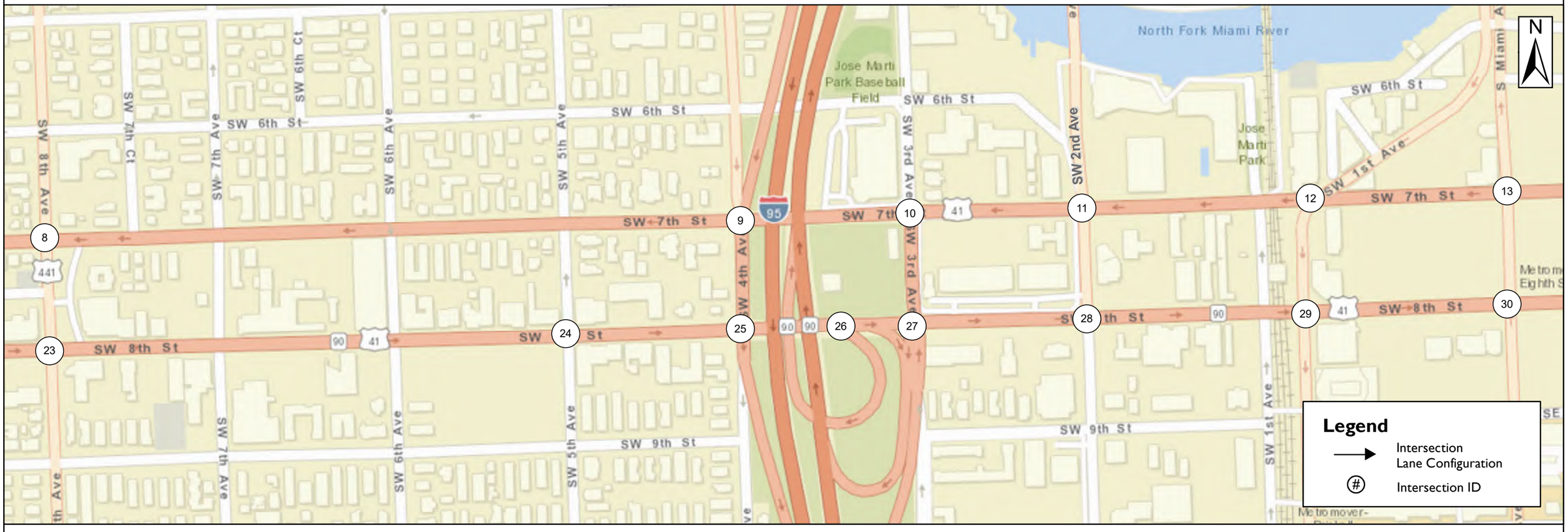
Intersection Lane configuration

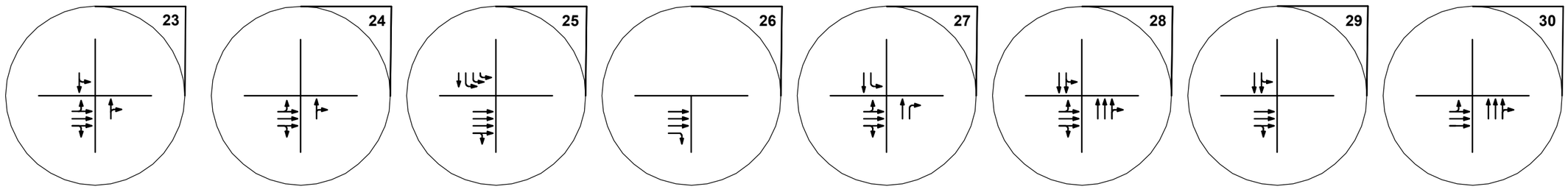
- Existing intersection lane configuration is depicted in Figure 3.4

Figure 3.3: SR 90 Existing Typical Section









FDOT

SR 90/SW 8th Street and SW 7th Street PD&E Study

Existing Year 2015 Intersection Lane Configuration

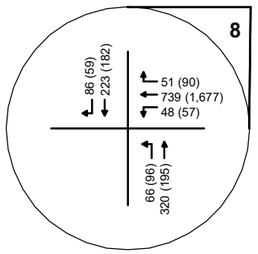
Figure 3.4

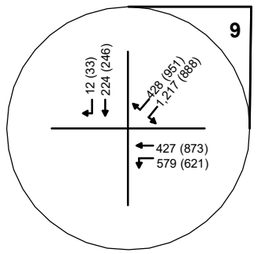
3.3 Existing Traffic Volumes

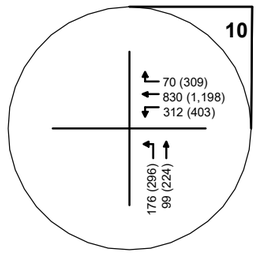
The IMR utilizes traffic volumes that were developed and approved for the SR 90/SW 8th Street/SW 7th Street PD&E Study. The development of the existing year (2015) traffic volumes is documented in detail in FDOT Technical Memorandum: *Existing Year (2015) Traffic Analysis, SW 8th Street/SW 7th Street PD&E Study, December 12, 2016*. Traffic data was gathered from multiple sources for development of the existing year traffic volumes. The data sources included:

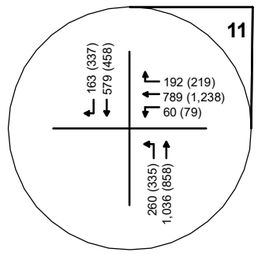
1. *SR 90/SW 7th Street/SW 8th Street Corridor Study, Data Collection Memorandum, FDOT, February 2016.*
2. *SR 90/SW 7th Street/SW 8th Street from US 1 to SW 27th Avenue, Data Collection Supplement Traffic Data from Traffic Impact Studies, June 2016.*
3. *SR 90/SW 7th Street/SW 8th Street Corridor Study, Technical Memorandum No. 1, Existing Conditions, June 2015*.
4. *SR 90/SW 7th Street/SW 8th Street Corridor Study, Technical Memorandum No. 2, Preliminary Project Traffic Report, April 2015*.
5. *I-95 Corridor Planning for Operational Deficiencies: US 1/SR 5 to Broward Boulevard, Design Traffic Technical Memorandum, FDOT, April 2016.*
6. *Florida Transportation Information DVD, 2015.*

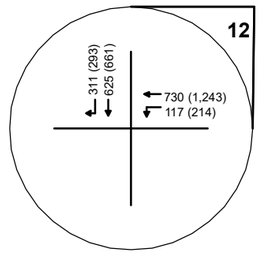
The data gathered from the above sources was processed, checked and adjusted, as necessary, to developed 2015 annual average daily traffic (AADT) and the typical weekday AM (8:00 AM to 9:00 PM) and PM (4:45 PM to 5:45 PM) peak hour volumes for the study network. The resulting hour traffic flows for the IMR study network are depicted in Figure 3.5 and Figure 3.6.

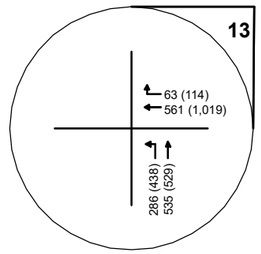


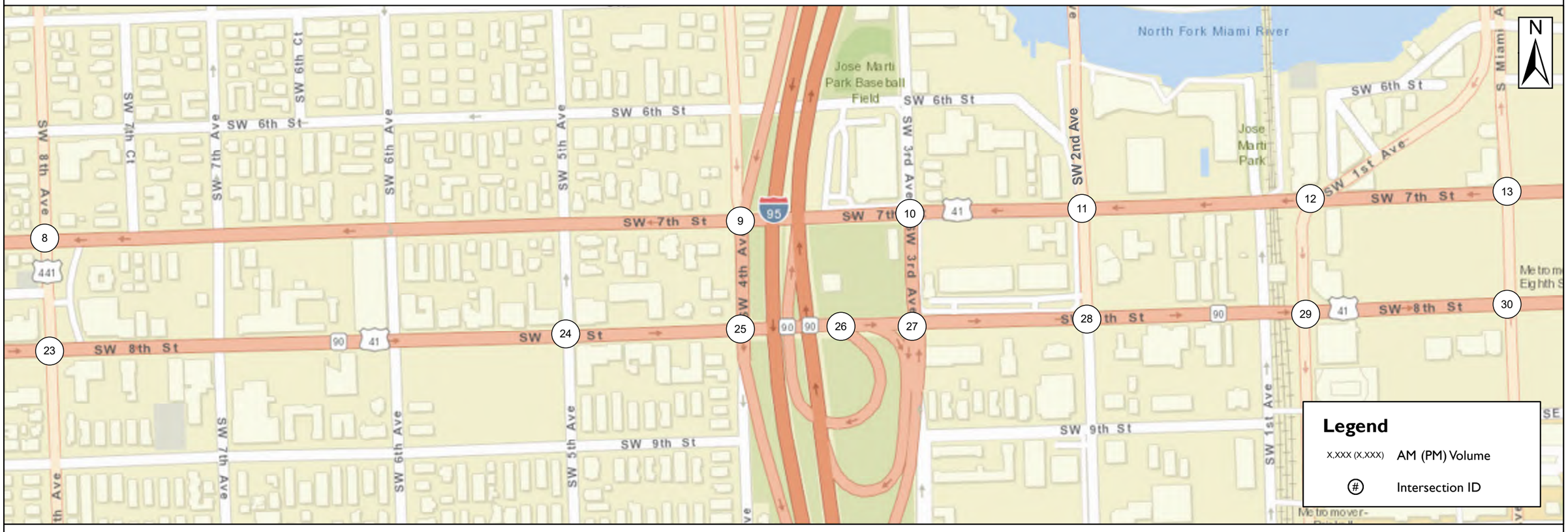


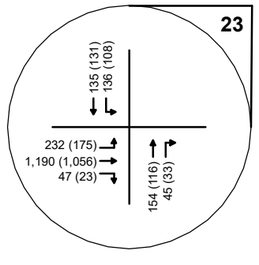


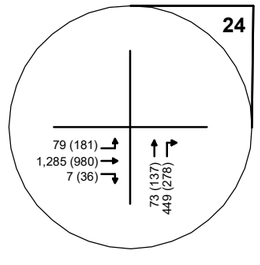


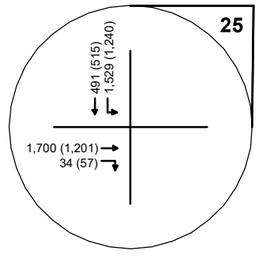


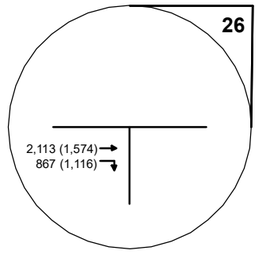


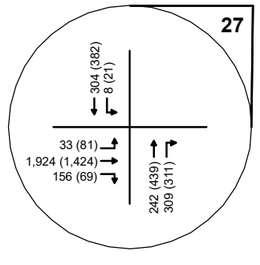


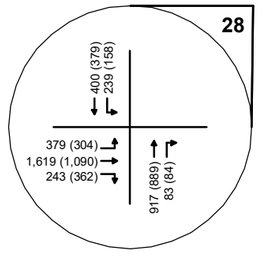


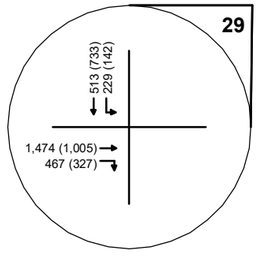


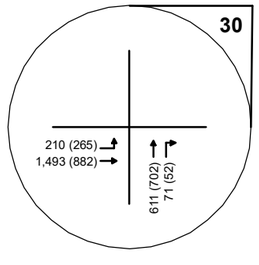










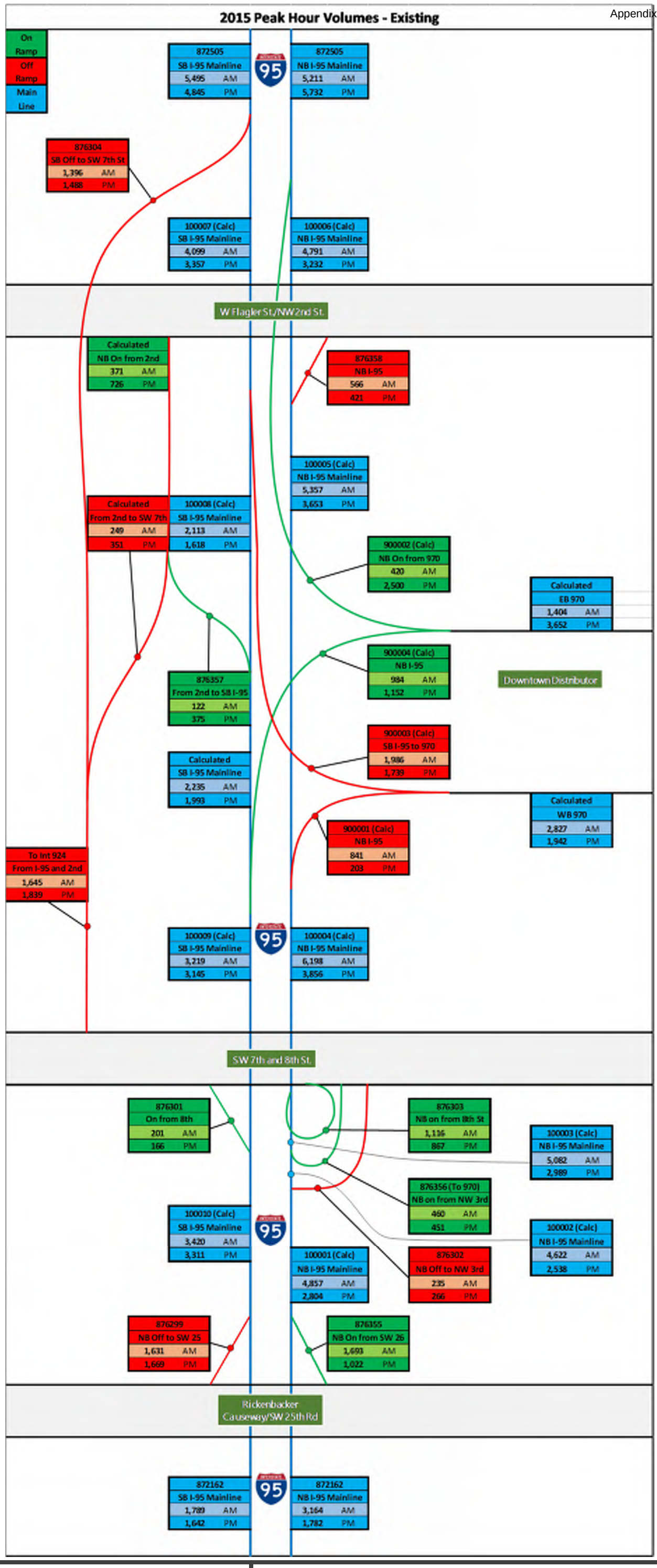


FDOT

SR 90/SW 8th Street and SW 7th Street PD&E Study

SW 8th Street and SW 7th Street 2015 Peak Hour Volumes

Figure 3.5



FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 2015 Peak Hour Volumes	Figure 3.6

3.4 Existing Traffic Operations

Level of Service (LOS) analyses were conducted for the existing (2015) conditions for the roadway segments and intersections in the study network. The analyses were conducted in accordance with procedures of the HCM, 2010 Edition. HCS was used for performing calculations for freeway segments (mainline, merge, diverge and weaving segments). Synchro models were developed for performing the level of service analyses at the terminal intersections and other project intersections. The road network geometry and peak hour traffic volumes used in the analyses were maintained consistent with the information presented in previous sections of this report (Sections 3.2 and 3.3). Signal timings used in the analysis were obtained from Miami-Dade County. These signal timing sheets are contained under Appendix C. Peak hour factors and the percent trucks during peak hours were maintained consistent with information presented under Section 2 (Methodology) of the IMR.

The study corridor along I-95 was subdivided into freeway segments (basic, merge, diverge, and weaving) consistent with the HCM procedures. It is recognized that the northbound segment of I-95 between SW 8th Street and NW 2nd Avenue consists of two overlapping weaving segments (see Figure 3.6). The analysis of this complex weaving segment is not explicitly covered in the HCM 2010 procedures. Hence, for the HCM analyses, a simplified geometry was assumed within the complex weaving segment to be consistent with the HCM 2010 analytical procedures. In the analysis of the two-sided-weave segment between SW 8th Street on-ramp (left hand entry) and the off-ramp to off-ramp to NW 2nd Street (right hand exit), the simplified geometry assumed that the intermediate off-ramp (exit to US 1) was removed and the associated off-ramp traffic was added to the freeway through traffic. No geometric assumptions were necessary for the weaving segment between SW 8th Street on-ramp (left hand entry) and the off-ramp to US 1 (right hand exit) as the conditions fall within the parameters covered by HCM 2010 procedures.

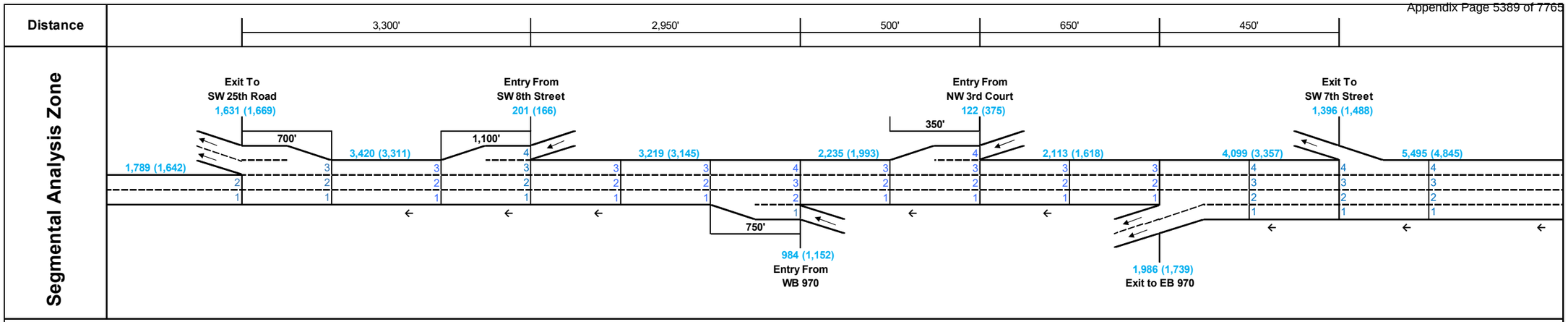
Analyses for weaving segments also required applying assumptions for traffic movements between upstream ramps/freeway segments and downstream ramps/freeway segments. A conservative approach was applied for the ramp-to-ramp volumes for the two-sided weaving segments. The ramp-to-ramp volumes were assumed to be 5% of the off-ramp volume. This was considered to be a conservative estimate as traffic entering I-95 and exiting at US 1 or NW 2nd Avenue would typically use the right hand

on-ramp from SW 8th Street and avoid the need for weaving when entering from the SW 8th Street left hand on-ramp. The HCS output sheets for the existing conditions analysis are contained under Appendix D and results are summarized in lane schematics shown in Figure 3.7. The intersection analysis are summarized in Table 3.1 and the associated Synchro output files are contained under Appendix D.

Results from the freeway level of service analysis depict generally good operating conditions along northbound I-95 and southbound I-95 in the AM and PM peak periods. In both peak periods, the analysis indicates that all I-95 freeway segments within the project limits operate at LOS D or better.

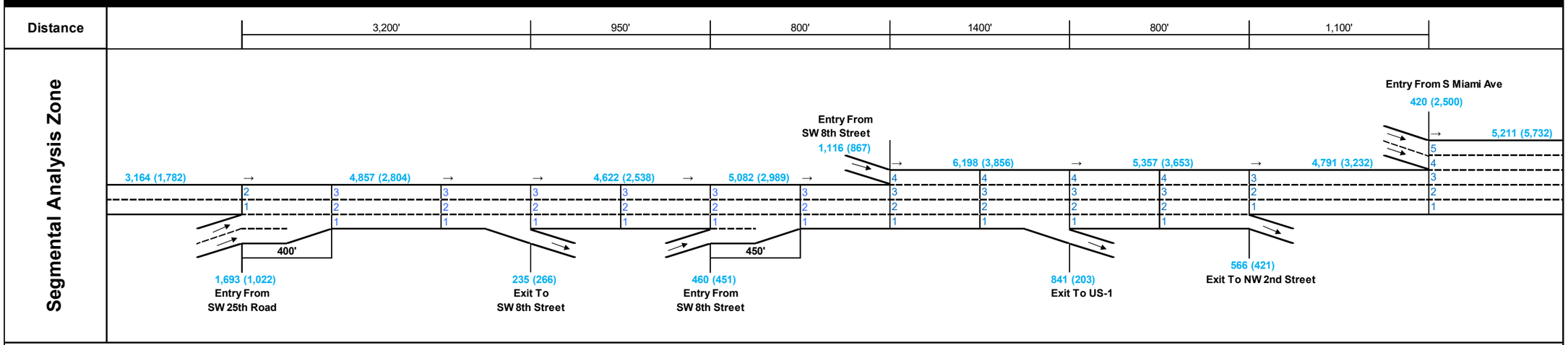
Results from the intersection level of service analysis indicate that all project intersections will operate at LOS D or better during the AM and PM peak periods except for the following:

- SW 8th Street at SW 8th Street at SW 2nd Avenue: LOS E in AM peak
- SW 8th Street at SW 1st Avenue: LOS E in AM and PM peaks
- SW 7th Street at SW 4th Avenue: LOS F in PM peak.
- This is one of the most critical intersections within the study network as it services traffic exiting SB I-95 (to EB SW 8th Street and WB SW 7th Street) as well as traffic circulating from WB SW 7th Street to access NB I-95.



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	B (15.5)	UC (v/c = 0.41)	C (19.8)	B (18.0)	C (18.6)	C (20.5)	B (14.3)	B (12.2)	UC (v/c = 0.50)	B (17.8)	D (32.8)	C (23.8)
PM LOS (Density)	B (14.3)	UC (v/c = 0.42)	C (19.1)	B (17.4)	C (18.2)	C (20.4)	B (13.9)	A (9.4)	UC (v/c = 0.43)	B (14.6)	D (30.7)	C (21.0)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave	Basic	Major Merge
AM LOS (Density)	D (27.5)	UC (v/c = 0.42)	D (28.2)	D (32.1)	D (26.7)	D (28.3)	D (31.5)	D (27.8)	UC (v/c = 0.10)
PM LOS (Density)	B (15.5)	UC (v/c = 0.25)	B (16.2)	C (22.0)	B (14.7)	B (18.3)	B (18.3)	C (18.7)	UC (v/c = 0.62)

Two-Sided Weave
C (26.5)
B (17.3)

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	Existing (2015) I-95 Level of Service Analysis

Figure 3.7

Table 3.1: Existing (2015) Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 8th Ave	32.2	C	28.5	C
SW 8th Street & SW 5th Ave	39.7	D	26.3	C
SW 8th Street & SW 4th Ave	52.7	D	45.4	D
SW 8th Street & SW 3rd Ave	28.5	C	30.8	C
SW 8th Street & SW 2nd Ave	71.2	**E**	48.8	D
SW 8th Street & SW 1st Ave	59.0	**E**	55.5	**E**
SW 8th Street & S Miami Ave	38.6	D	41.8	D
SW 7th Street & S Miami Ave*	16.7	B	17.7	B
SW 7th Street & SW 1st Ave*	27.3	C	29.4	C
SW 7th Street & SW 2nd Ave	51.8	D	48.4	D
SW 7th Street & SW 3rd Ave	35.1	D	47.0	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp	39.6	D	91.5	**F**
SW 7th Street & SW 8th Ave*	18.1	B	26.1	C

*LOS was calculated using the HCM 2000 methodology

3.5 Corridor Crash Analysis

FDOT's Crash Analysis Reporting System (CARS) was used to gather historical crash records for the I-95 and the SR 90/SW 8th Street/SW 7th Street corridors. CARS is a database maintained annually by the FDOT for crashes reported along state highway facilities. The database provides information on various characteristics associated with each crash including: collision type, severity, weather conditions, road surface conditions and date/time information. The CARS database was researched to identify and extract crashes reported along the study corridor during the period from January 2011 through December 2015. The crashes were analyzed to make an assessment of safety conditions within the study network.

A detailed analysis of the crash data collected for the PD&E Study is documented in the related ***Safety Analysis Technical Memorandum.*** The following provides a summary of the findings from the Safety Study.

Safety Analysis for SR 90/SW 8th Street and SW 7th Street

Table 3.2 and Table 3.3 depict a summary of the crash analysis for SW 8th Street and SW 7th Street respectively. The analysis shows a total of 2,593 crashes experienced along SW 8th Street and a total of 1,659 crashes experienced along SW 7th Street over the five-year study period. The predominant crash types along SW 8th Street were rear-end crashes (29%); sideswipe crashes (23.6%) and angle crashes (22.4%). Similarly, the predominant crash types along SW 7th Street were angle crashes (35.1%); rear end crashes (24.1%); and sideswipe crashes (22.7%). Six fatal crashes were experienced along SW 8th Street and one along SW 7th Street.

Analysis of the traffic crash data identified several locations within the influence area of the I-95/SR 90 Interchange with a history of abnormally high crash rates (classified as high cash locations by FDOT). These high crash locations include the following intersections:

- SW 8th Street at SW 4th Avenue - listed high crash location in 2011 through 2015
- SW 8th Street at SW 3rd Avenue - listed high crash location in 2011, 2012, 2014 and 2015
- SW 8th Street at SW 2nd Avenue - listed high crash location in 2011 through 2015
- SW 8th Street at SW 1st Avenue - listed high crash location in 2011, 2012 and 2015

- SW 7th Street at SW 2nd Avenue - listed high crash location in 2011 through 2015
- SW 7th Street at SW 3rd Avenue - listed high crash location in 2011 through 2015
- SW 7th Street at SW 4th Avenue - listed high crash location in 2011 through 2015
- SW 7th Street at South Miami Avenue - listed high crash location in 2012 and 2014
- SW 7th Street at SW 1st Avenue - listed high crash location in 2011, 2012, 2014 and 2015

The probable causal factors for the crashes experienced at the above high crash locations include: excessive congestion; conflicting weaving maneuvers; parking activities; narrow lanes and aggressive driver behavior.

Conflicting weaving maneuvers were identified as one of the primary contributing cause for crashes experienced within the immediate vicinity of the interchange ramp terminal intersections. The graphic in Figure 3.8 illustrates the weaving conflicts experienced in the vicinity of the terminal intersections. The traffic flow pattern patter in the vicinity of the ramp terminals involves a heavy southbound left turn movement (triple left turn lanes) at the intersection of SW 8th Street and SW 4th Avenue. This is followed immediately downstream by a right turn movement from SW 8th Street to access the I-95 NB on-ramps. This creates an area with numerous conflicting movements - illustrated by the dotted red line representing the weaving movement and the solid green line representing the conflicting through movement.

Figure 3.9 illustrates other operational issues that impact safety in the immediate vicinity of the ramp terminals. These include queue spillback onto SW 3rd Avenue and SW 7th Avenue from the NB terminal intersection (SW 8th Street and SW 3rd Avenue intersection). In addition conflicts frequently occur involving traffic exiting the Publix Driveway and weaving across traffic of SW 7th Street to get appropriately aligned for maneuvering onto SB 4th Avenue and EB 8th Street, as well as accessing NB I-95 ramps (illustrated by dotted red line and solid green line in Figure 3.9). Addressing these safety and operational issues within the vicinity of the interchange is a primary concern for the proposed design modifications presented in the IMR.

Table 3.2: Five-Year Crash Summary SW 8th Street

SR 90/US 41/SW 8th St. from SW 27th Ave. to Brickell Ave.		Number of Crashes					5 Year Total Crashes	Mean Crashes	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	107	153	160	156	176	752	150	29.0%
	Head On	1	2	0	1	2	6	1	0.2%
	Angle	79	120	117	133	131	580	116	22.4%
	Left Turn	10	10	13	9	13	55	11	2.1%
	Right Turn	1	7	2	4	2	16	3	0.6%
	Sideswipe	88	103	131	122	167	611	122	23.6%
	Backed Into	5	1	4	7	6	23	5	0.9%
	Pedestrian	9	15	20	10	11	65	13	2.5%
	Bicycle	6	5	7	6	7	31	6	1.2%
	Fixed Object	*8*	*7*	*9*	*2*	*4*	*30*	*6*	*1.2%*
	Other Non Fixed Object Collisions	*14*	*21*	*23*	*17*	*7*	*82*	*16*	*3.2%*
	Parked Motor Vehicle	11	20	18	16	7	72	14	2.8%
	Non-Collisions	*0*	*5*	*2*	*2*	*0*	*9*	*2*	*0.3%*
	Others	66	58	63	66	80	333	67	12.8%
	Total Crashes	**394**	**507**	**551**	**535**	**606**	**2593**	**519**	**100.0%**
SEVERITY	PDO Crashes	329	422	466	459	536	2212	442	85.3%
	Fatal Crashes	2	1	1	1	1	6	1	0.2%
	Injury Crashes	63	84	84	75	69	375	75	14.5%
LIGHTING CONDITIONS	Daylight	256	350	375	368	437	1786	357	68.9%
	Dusk	12	10	15	14	8	59	12	2.3%
	Dawn	4	5	8	7	3	27	5	1.0%
	Dark	121	142	152	145	156	716	143	27.6%
	Unknown	1	0	1	1	2	5	1	0.2%
SURFACE CONDITIONS	Dry	352	447	486	489	555	2329	466	89.8%
	Wet	38	59	64	46	51	258	52	9.9%
	Others	4	1	1	0	0	6	1	0.2%
HOUR OF DAY	00:00-06:00	56	74	50	47	50	277	55	10.7%
	06:00-09:00	50	66	66	57	69	308	62	11.9%
	09:00-11:00	47	57	48	52	81	285	57	11.0%
	11:00-13:00	48	69	66	65	74	322	64	12.4%
	13:00-15:00	51	49	81	72	84	337	67	13.0%
	15:00-18:00	51	81	112	111	107	462	92	17.8%
	18:00-24:00	91	111	128	131	141	602	120	23.2%

Table 3.3: Five-Year Crash Summary at SW 7th Street

SW 7th St. from Brickell Ave. to SW 8th St.		Number of Crashes					5 Year Total Crashes	Mean Crashes	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	53	73	92	88	94	400	80	24.1%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	85	150	121	111	115	582	116	35.1%
	Left Turn	2	2	7	11	4	26	5	1.6%
	Right Turn	0	2	1	1	1	5	1	0.3%
	Sideswipe	47	81	72	91	86	377	75	22.7%
	Backed Into	3	5	1	6	0	15	3	0.9%
	Pedestrian	8	4	6	4	8	30	6	1.8%
	Bicycle	0	1	3	1	5	10	2	0.6%
	Fixed Object	*3*	*6*	*3*	*6*	*5*	*23*	*5*	*1.4%*
	Other Non-Fixed Object Collisions	*3*	*1*	*3*	*6*	*3*	*16*	*3*	*1.0%*
	Parked Motor Vehicle	3	1	3	4	3	14	3	0.8%
	Non-Collisions	*5*	*2*	*0*	*2*	*1*	*10*	*2*	*0.6%*
	Others	23	39	35	40	28	165	33	9.9%
	Total Crashes	**232**	**366**	**344**	**367**	**350**	**1659**	**332**	**100.0%**
SEVERITY	PDO Crashes	186	298	271	323	298	1376	275	82.9%
	Fatal Crashes	1	0	0	0	0	1	0	0.1%
	Injury Crashes	45	68	73	44	52	282	56	17.0%
LIGHTING CONDITIONS	Daylight	148	210	207	255	271	1091	218	65.8%
	Dusk	6	9	9	7	7	38	8	2.3%
	Dawn	1	5	5	1	1	13	3	0.8%
	Dark	77	141	123	103	71	515	103	31.0%
	Unknown	0	1	0	1	0	2	0	0.1%
SURFACE CONDITIONS	Dry	212	308	293	334	316	1463	293	88.2%
	Wet	20	56	50	33	34	193	39	11.6%
	Others	0	2	1	0	0	3	1	0.2%
HOUR OF DAY	00:00-06:00	48	90	62	45	32	277	55	16.7%
	06:00-09:00	17	22	32	28	32	131	26	7.9%
	09:00-11:00	25	33	33	50	42	183	37	11.0%
	11:00-13:00	28	29	30	40	34	161	32	9.7%
	13:00-15:00	22	45	39	47	56	209	42	12.6%
	15:00-18:00	48	73	70	89	91	371	74	22.4%
	18:00-24:00	44	74	78	68	63	327	65	19.7%

Figure 3.8: Weaving Maneuvers in the Vicinity of SW 8th Street and SW 4th Avenue

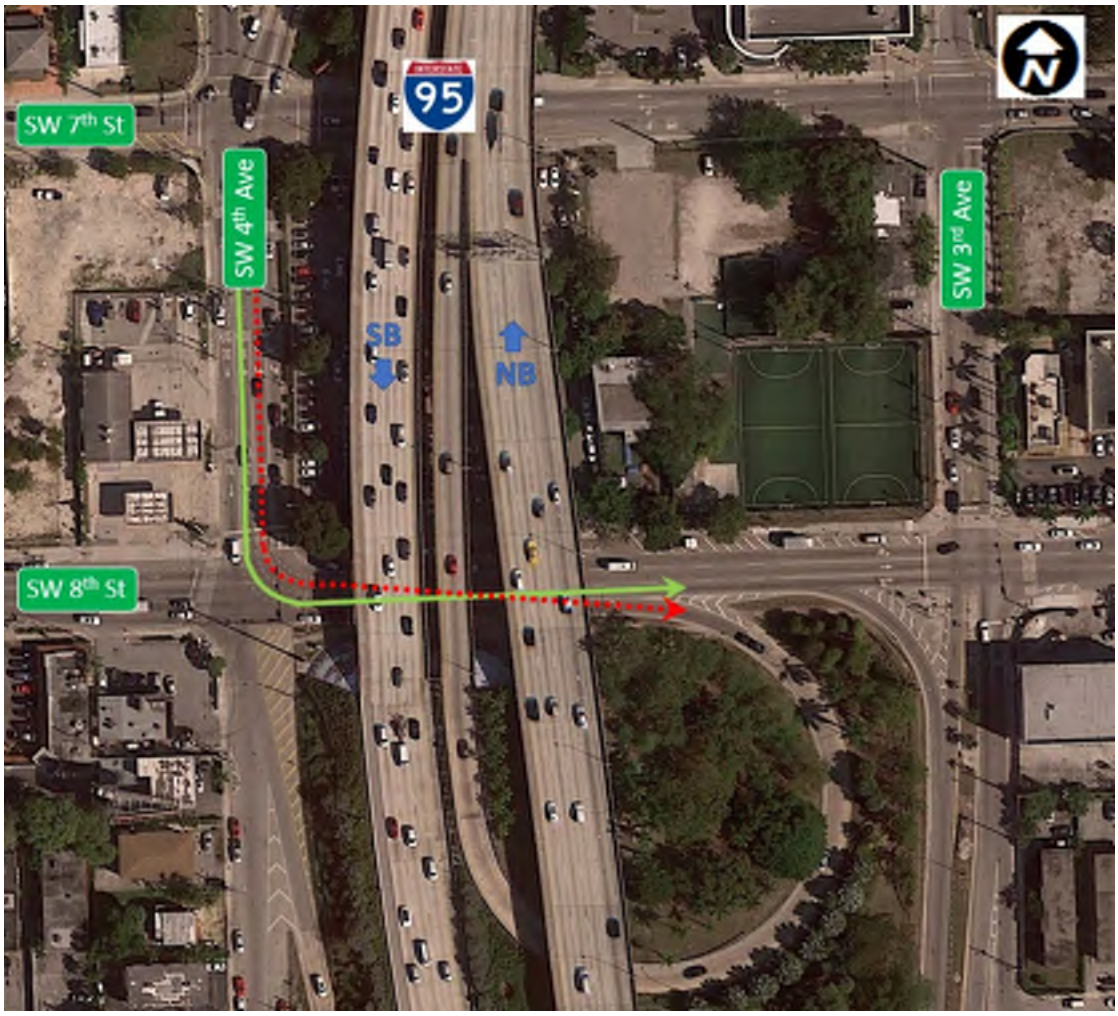


Figure 3.9: Operational issues at NB I-95 Terminal and along SW 7th Street

Safety Analysis for the I-95 Corridor

The safety analysis for I-95 included crashes from the Rickenbacker Causeway (MP 0.420) to just north of NW 2nd Street (MP 2.460). A total of 493 crashes were reported along this section of I-95 with 80 crashes in 2011, 96 crashes in 2012, 97 crashes in 2013, 102 crashes in 2014 and 118 crashes in 2015. These results indicate a progressive increase in crashes (approximately 10% per year) along the subject I-95 corridor from 2011 through 2015.

Consistent with FDOT's procedures, the crash analyses for the I-95 corridor was subdivided into two segments per traffic breaks on the corridor:

- Southern segment from Rickenbacker Causeway to SR 90 Interchange
- Northern segment from SR 90 interchange to NW 2nd Street.

The following sections summarize the safety analysis for the two segments of I-95.

Table 3.4 and Table 3.5 depict a summary of the crash analysis for the I-95 segments south of SR 90 and north of SR 90, respectively. The analysis shows that over the 5-year period a total of 309 crashes were experienced along the I-95 segment south of SR 90 and 182 crashes along I-95 north of SR 90. The predominant crash types along the I-95 southern segment were rear-end crashes (46.1%); fixed object crashes (21.4%) and sideswipes crashes (19.4%). Similarly, the predominant crash types along the I-95 northern segment were rear end crashes (40.7%); fixed object crashes (23.6%); and sideswipe crashes (23.1%). Two fatal crashes were experienced along the I-95 northern segment while no fatalities were reported on the I-95 southern segment.

The crashes experienced along the I-95 southern segment and the I-95 northern segment were determined to be not abnormally high when compared to similar locations within the state – no spots or segments along the I-95 corridor were identified on the FDOT's High Crash List between 2011 and 2015. This suggests that safety on the I-95 mainline is not a significant concern at this time. This is an important finding as it suggests that the current operating conditions along I-95 mainline (merge, diverge and weaving maneuvers) are not adverse to the safety of the facility. However, inspection of the crash data indicates that the proportion of crashes experienced during dark conditions (approximately 41%) along

both I-95 segments is higher than the state average of 33%. This suggest that lighting conditions may be inadequate along the corridor. No other significant safety-related concerns were identified from the I-95 crash data.

Table 3.4: Five-Year Crash Summary – I-95 Segment South of SR 90

I-95 from Rickenbacker Cswy. to the SW 8/7th St. Interchange		Number of Crashes					5 Year Total Crashes	Mean Crashes	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	31	30	30	24	28	143	29	46.3%
	Head On	0	0	0	0	0	0	0	0.0%
	Angle	5	6	4	2	4	21	4	6.8%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	9	10	13	15	13	60	12	19.4%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	0	1	0	1	0	0.3%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*13*	*14*	*10*	*15*	*14*	*66*	*13*	*21.4%*
	Other Non-Fixed Object Collisions	*1*	*0*	*0*	*2*	*0*	*3*	*1*	*1.0%*
	Non-Collisions	*1*	*1*	*1*	*0*	*4*	*7*	*1*	*2.3%*
	Others	1	5	0	0	2	8	2	2.6%
	Total Crashes	**61**	**66**	**58**	**59**	**65**	**309**	**62**	**100.0%**
SEVERITY	PDO Crashes	37	40	33	39	49	198	40	64.1%
	Fatal Crashes	0	0	0	0	0	0	0	0.0%
	Injury Crashes	24	26	25	20	16	111	22	35.9%
LIGHTING CONDITIONS	Daylight	29	40	37	36	38	180	36	58.3%
	Dusk	1	3	2	3	1	10	2	3.2%
	Dawn	1	0	1	2	0	4	1	1.3%
	Dark	30	23	18	18	26	115	23	37.2%
	Unknown	0	0	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	57	53	45	55	51	261	52	84.5%
	Wet	4	13	13	4	14	48	10	15.5%
	Others	0	0	0	0	0	0	0	0.0%
HOUR OF DAY	00:00-06:00	14	10	9	9	14	56	11	18.1%
	06:00-09:00	5	8	5	6	7	31	6	10.0%
	09:00-11:00	4	4	4	6	4	22	4	7.1%
	11:00-13:00	4	6	5	1	2	18	4	5.8%
	13:00-15:00	5	3	6	6	4	24	5	7.8%
	15:00-18:00	8	17	13	16	18	72	14	23.3%
	18:00-24:00	21	18	16	15	16	86	17	27.8%

Table 3.5: Five-Year Crash Summary – I-95 Segment North of SR 90

I-95 from the SW 8/7th St. Interchange to north of NW 2nd St.		Number of Crashes					5 Year Total Crashes	Mean Crashes	%
		Year							
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	4	11	15	20	24	74	15	40.7%
	Head On	0	1	0	0	0	1	0	0.5%
	Angle	0	1	1	2	3	7	1	3.8%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	1	0	1	0	0.5%
	Sideswipe	4	6	10	8	14	42	8	23.1%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	0	0	1	0	0	1	0	0.5%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	*8*	*8*	*8*	*9*	*10*	*43*	*9*	*23.6%*
	Other Non-Fixed Object Collisions	*0*	*1*	*1*	*0*	*1*	*3*	*1*	*1.6%*
	Non-Collisions	*0*	*0*	*2*	*3*	*0*	*5*	*1*	*2.7%*
	Others	3	1	1	0	0	5	1	2.7%
	Total Crashes	**19**	**29**	**39**	**43**	**52**	**182**	**36**	**100.0%**
SEVERITY	PDO Crashes	13	22	27	28	36	126	25	69.2%
	Fatal Crashes	0	0	0	1	1	2	0	1.1%
	Injury Crashes	6	7	12	14	15	54	11	29.7%
LIGHTING CONDITIONS	Daylight	6	20	28	24	31	109	22	59.9%
	Dusk	0	0	0	3	2	5	1	2.7%
	Dawn	0	2	0	0	1	3	1	1.6%
	Dark	13	7	11	16	18	65	13	35.7%
	Unknown	0	0	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	15	27	35	33	40	150	30	82.4%
	Wet	4	2	4	10	12	32	6	17.6%
	Others	0	0	0	0	0	0	0	0.0%
HOUR OF DAY	00:00-06:00	7	3	4	8	10	32	6	17.6%
	06:00-09:00	1	3	7	4	4	19	4	10.4%
	09:00-11:00	0	4	6	2	2	14	3	7.7%
	11:00-13:00	0	3	2	3	5	13	3	7.1%
	13:00-15:00	0	4	1	3	5	13	3	7.1%
	15:00-18:00	2	5	6	9	9	31	6	17.0%
	18:00-24:00	9	7	13	14	17	60	12	33.0%

3.6 Multi-Modal Facilities

Pedestrian Accommodations

SW 8th Street has existing sidewalks on both sides of the roadway from SW 27th Avenue to Brickell Avenue. The sidewalk width varies from ten (10)-ft to fifteen (15)-ft on the north side of the roadway and from five (5)-ft to ten (10)-ft on the south side of the roadway. SW 7th Street along the project corridor has a continuous six and a half (6.5)-ft sidewalk on both sides of the roadway. FDOT currently has two projects under construction (Project numbers: 437471-1-52-01 and 437792-1-52-01) which provide American with Disabilities Act (ADA) curb cut ramps and pedestrian mid-block crossings along the SW 8th Street and SW 7th Street.

Bicycle Facilities

There are no existing bicycle facilities or shared bicycle and travel lanes or "sharrows" within the project corridor on either SW 8th Street or SW 7th Street. However, the City of Miami's Bicycle Master Plan has included designated bicycle routes on these facilities in the future. In addition, several cross-streets in the study area including SW 2nd Avenue, SW 1st Avenue and South Miami Avenue currently have designated or planned bicycle lanes. The M-Path Trail is a paved multi-use trail in Miami-Dade County that begins at SW 3rd Street near the Miami River and crosses the SW 7th Street and SW 8th Street corridors.

Transit Service and Facilities

Several transit services and facilities exist within or near the study location including Metrobus, Metrorail (Heavy Rail), Metromover (Automated People Mover), City's Trolley service and demand-response services (the County's Special Transportation Service (STS) and City On-Demand). Metrobus and City of Miami Trolley directly serve the study corridor. The Metromover provides free service around the Downtown Miami area and to the Government Center Metrorail Station with a station located at 59 SW 8th Street (Brickell City Center Station). The Brickell Metrorail Station located near the SW 8th Street corridor offers service south to Dadeland Mall (Kendall area), north to Palmetto Station (City of Doral) and to Miami International Airport (MIA).

The Metrobus routes directly serving the corridor include Routes 8, 207, and 208 operated by the Miami-Dade Department of Transportation and Public Works (DTPW), and the Little Havana Trolley Route operated by the City of Miami (**Figure 3.10** and **Figure 3.11**).

Route 8 runs between Florida International University (FIU) and the Brickell area along SW 8th Street and SW 7th Street. This bus route services the project limits between SW 27th Avenue and SW 1st Avenue.

Route 207 runs between the MDC Interamerican Campus and the Brickell area along SW 7th Street and SW 1st Street. This bus route services the project limits between Beacom Boulevard and SW 1st Avenue.

Route 208 runs between the MDC Interamerican Campus and the Brickell area along SW 8th Street and West Flagler Street. This bus route services the project limits between Beacom Boulevard and SW 1st Avenue.

The City of Miami's **Little Havana Trolley Route** runs between SW 37 Avenue and the Brickell area along SW 8 Street and West Flagler Street. This trolley route services the project limits between Beacom Avenue and SW 2nd Avenue.

Freight and Intermodal Centers

The SW 8th Street Metromover Station is located along the SW 8th Street project corridor and connects to the Brickell Metromover Station and Brickell Metrorail Station. The Metromover provides free service around the Downtown Miami area and to the Government Center Metrorail Station. The Brickell Metrorail Station offers service to the Palmetto Expressway, south to Dadeland Mall and to Miami International Airport via the Miami Intermodal Center (MIC). Interstate 95 is an SIS facility, freight corridor and part of the National Highway Freight network. No freight centers exist within the project study area.

Figure 3.10: Existing Bus Transit Service

Source: Miami-Dade County Department of Transportation and Public Works

Figure 3.11: Existing Trolley Service – Little Havana

Source: City of Miami

4.0 NEED

4.1 Congestion Relief and Transportation Demand

CAPACITY/TRANSPORTATION DEMAND (Improve Traffic Operations and Level of Service). A 2013 traffic analysis performed as part of the Planning Study indicates that very few intersections were operating at a level of service that meets the City of Miami requirements for this type of facility. The No-Build 2040 traffic results indicates that operations of the intersections and segments along the corridor will further degrade and continue to experience heavy delays during peak hours if no improvements are made. While this project will not focus on widening the existing roadways, it will evaluate operational alternatives to address the 2040 transportation demands by improving all modes of transportation.

Miami-Dade County is the fastest growing county in Florida. According to the US Census, the County experienced a population growth from 2,496,435 in 2010 to 2,617,176 in 2013, representing an increase of 4.8%. The City of Miami has grown from a population of 399,457 in 2010 to 417,650 in 2013, representing an increase of 4.5%. The population growth within the City of Miami, along with new developments in the downtown Miami and Brickell areas, will result in a significant increase in surface transportation demand and will worsen the already congested SR 90/SW 7th Street and SR 90/SW 8th Street corridors. Additionally, the Brickell area has seen significant growth in the last decade with the addition of high density, high-rise developments, which will increase traffic along the corridor and further degrade the LOS. Based on the Southeast Florida Regional Planning Model (SERPM), a 0.89% to 1.90% annual growth rate for the study area roadways has been identified. The PD&E Study will evaluate alternatives to accommodate the anticipated transportation demand.

SAFETY (Improve Safety): Crash data for SR 90/SW 7th Street and SR 90/SW 8th Street from SR 9/SW 27th Avenue to SR 5/US 1/Brickell Avenue has been evaluated for the four-year period between 2010-2013. This data indicates that a total of 3,008 crashes occurred on the project corridor (1,249 incidents westbound and 1,759 incidents eastbound). The predominant types of crashes on SR 90/SW 7th Street (westbound) were angle (34%), rear end (23%) and collisions with moving vehicles on other roadways (21%). Similarly, the most prevalent crashes along SR 90/SW 8th Street (eastbound) included rear end

(27%), angle collisions (22%) and collisions with moving vehicles on other roadways (23%). Crashes of this type are typically attributed to the congested conditions during peak periods.

Analyzing the severity of these crashes, it was reported that seven (7) crashes resulted in seven (7) fatalities (one fatality per crash). Six (6) of these fatal crashes occurred on SR 90/SW 8th Street, four (4) of which involved pedestrians. Furthermore, there were 531 collisions involving 779 injuries between 2010 and 2013. This high incidence of severe crashes underscores the need for an in-depth or formal safety review of the corridor. The PD&E study will develop alternatives that will help address safety concerns by eliminating pedestrian and vehicular conflicts, providing bicycle amenities, and ensuring that the project corridor meets FDOT's safety and mobility goals as travel demand continues to grow.

SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT (Improve Access to Urban Central Business Districts). Currently, the existing land use adjacent to the project corridor is predominantly multi-family residential and commercial. The land use along SR 90/SW 8th Street consists of commercial uses, while SR 90/SW 7th Street consists of residential areas west of I-95 and commercial use with scattered residential areas east of I-95. The residential areas within the study area are composed predominantly of multi-family buildings, with high-rise establishments located east of I-95 in the Brickell area. The commercial uses vary and include various shopping plazas, food and entertainment establishments, supermarkets, pharmacies, gas stations, and car dealerships.

According to the City of Miami 2020 Future Land Use Map, the areas east of I-95 are designated as the Little Havana and Brickell Urban Central Business Districts (UCBD) and Residential Density Increase Areas (RDIA). These districts include restricted commercial, allowing residential uses to a maximum density equivalent to 'High Density Multifamily Residential' with small sections of general commercial and public facilities/recreation. West of I-95 is predominantly planned to be restricted commercial uses, with medium density multi-family and single-family residential use as the project corridor approaches SR 9/SW 27th Avenue.

The Brickell UCBD is home to one of South Florida's major financial districts with one of the largest concentrations of international banks located along Brickell Avenue. Various consulates and foreign trade

offices are located in Brickell, as well. The Little Havana UCBD will house the Brickell City Centre, a 5.4-million square foot mixed-use urban development. East of SR 5/US 1/Brickell Avenue, the project corridor continues as SE 8th Street (Brickell Key Drive) which connects to Brickell Key, a gated island of upscale high-rise developments and hotel towers. The project improvements will support the City of Miami's plans for future development and economic growth by improving access to these areas

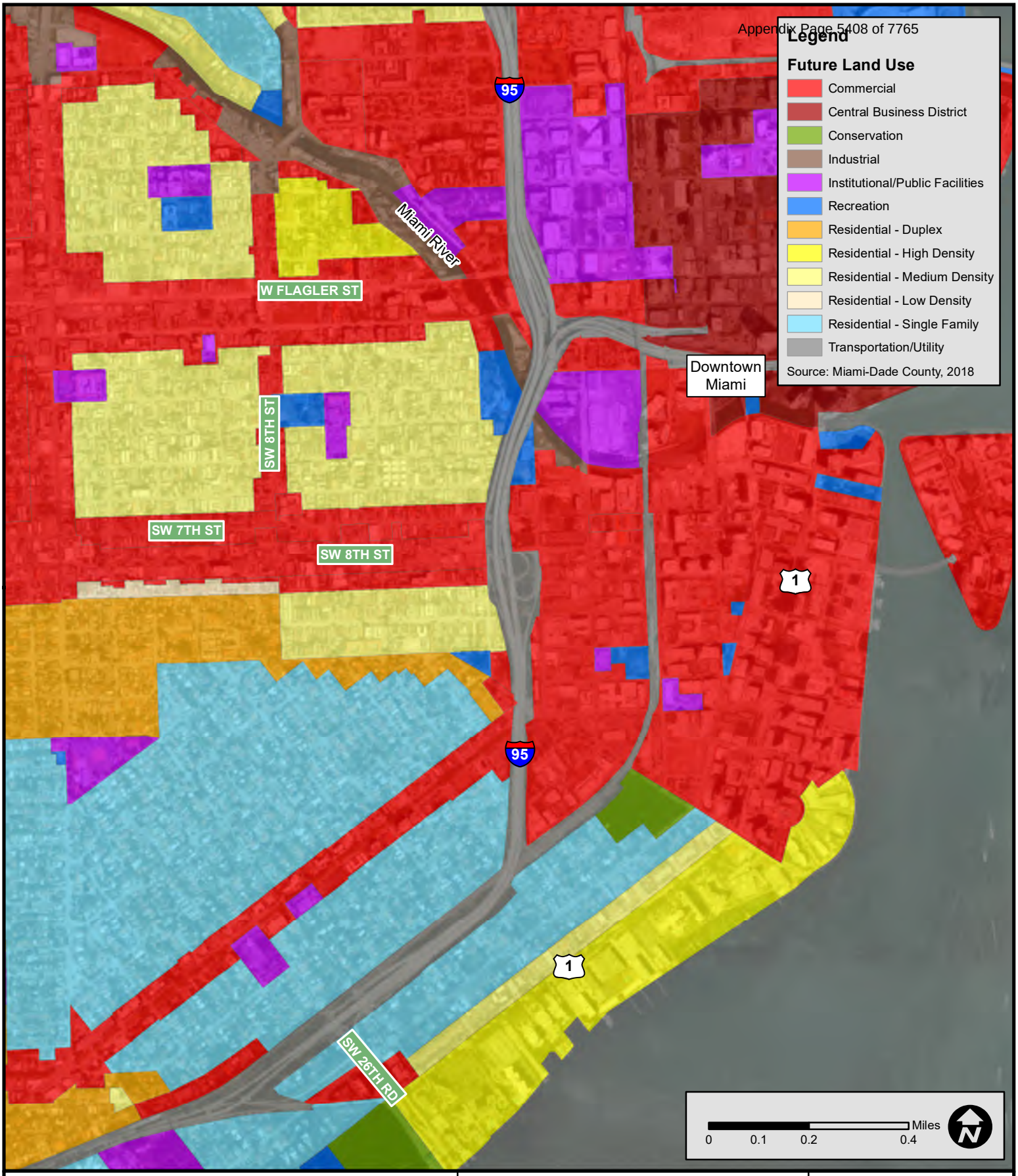
MODAL INTERRELATIONSHIPS (Improve Multimodal Connectivity)

Currently, there are sidewalks along both sides of SR 90/SW 7th Street and SR 90/SW 8th Street. There are no bicycle accommodations present; however, the 2015 Bicycle Master Plan has designated bicycle routes on these facilities. In addition, several cross-streets in the study area including SW 2nd Avenue, SW 1st Avenue and South Miami Avenue currently have designated or planned bicycle lanes. The M-Path Trail is a paved multi-use trail in Miami-Dade County that begins at SW 1st Avenue near the Miami River and crosses the SR 90/SW 7th Street and SW 8th Street corridor. There are several mass transit facilities serving the corridor, such as the Miami-Dade Transit bus routes 8, 6, 24, 48, 95, 207, and 208, and the Eighth Street Metromover Station. The Eighth Street Metromover Station connects to the Brickell Metromover Station and Brickell Metrorail Station. The Metromover provides free service around the downtown Miami area and to the Government Center Metrorail Station. The Brickell Metrorail Station offers service to the Palmetto Expressway, south to Dadeland Mall and to Miami International Airport via the Miami Intermodal Center (MIC). The project will improve intermodal connectivity by providing enhanced pedestrian/bicycle and transit accommodations.

5.0 FUTURE NO BUILD CONDITIONS

5.1 Future Land Use

Figure 5.1 depicts future land uses within the project vicinity per information gather from the City of Miami. Per the city's plans, the areas east of I-95 including the Little Havana Residential Density Increase Area (RDIA) and Brickell Urban Central Business District (UCBD) are planned to continue to be restricted commercial. It permits residential uses up to a maximum density equivalent to that of high density multi-family residential with smaller sections of general commercial and public facilities/recreation. West of I-95, restricted commercial uses including medium density multi-family and single-family residential uses will continue as well.



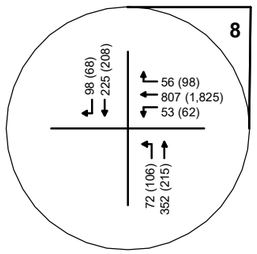
FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	**Future Land Use Map**	**Figure 5.1**

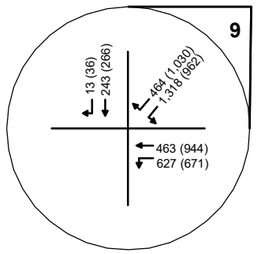
5.2 No Build Alternative – Transportation Network

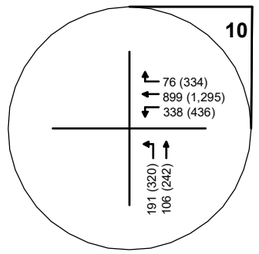
The future year No Build Alternative network includes the existing (2015) roadway conditions plus all funded and committed projects within the study corridor per the FDOT 5-Year Work Program. It also incorporates all Cost Feasible Plan projects contained in the Metropolitan Planning Organization's (MPO's) Long Range Transportation Plan (LRTP) that are located outside the immediate project limits. The roadway geometry for the No Build Alternative was determined to be consistent with the geometry for the existing 2015 road network within the project limits. This road network is described in detail under Section 3.2 of the IMR.

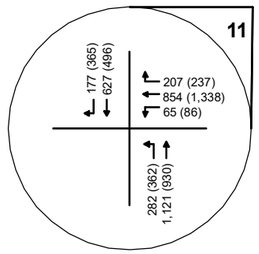
5.3 No Build Alternative – Future Traffic Forecast

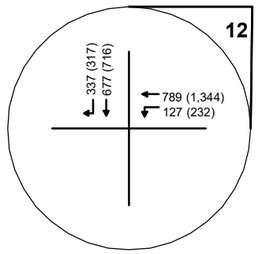
The development of the travel demand forecast for the No Build Alternative is documented in detail in the ***Design Traffic Technical Memorandum, SW 8th Street / SW 7th Street PD&E Study from SR 9/SW 27th Avenue to SR 5/US-1/Brickell Avenue, March 8, 2018, 2017***. This Technical Memorandum is attached as a companion reference document for the IMR. The memorandum contains details of the analytical procedures followed in developing AADTs and peak hour volumes for the existing year 2015, opening year 2025, and design year 2045. The memorandum was processed through the FDOT's document review procedures and the information contained therein was found to be acceptable by the FDOT for the purposes of this study. Figures 5-2 through 5-5 show the 2025 and 2045 peak hour traffic forecasts for the No Build Alternative.

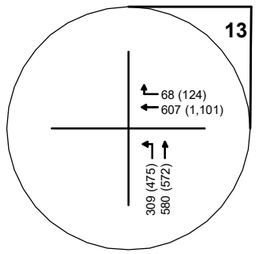


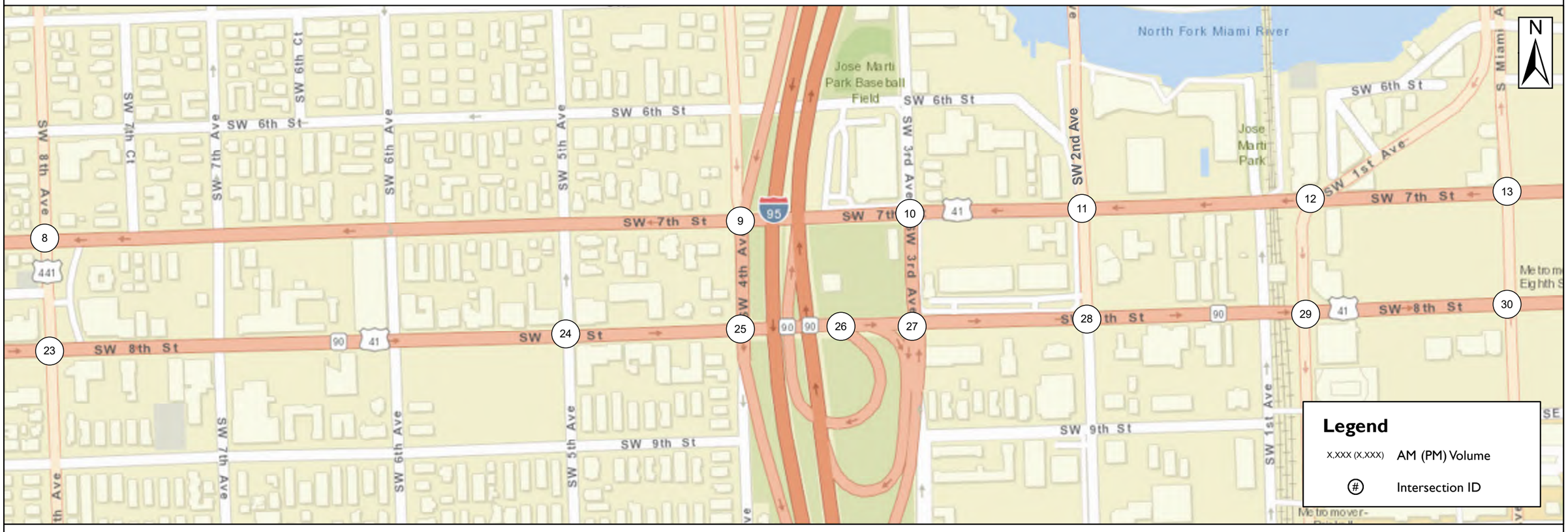


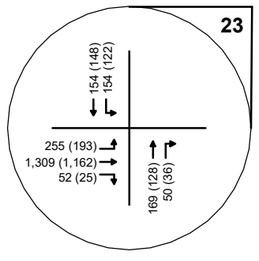


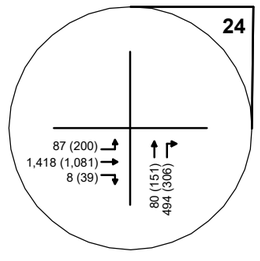


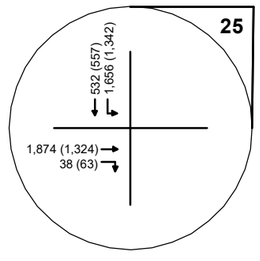


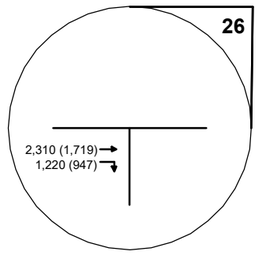


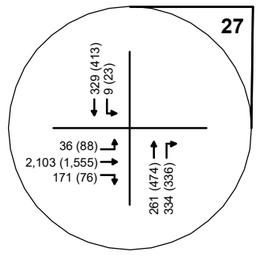


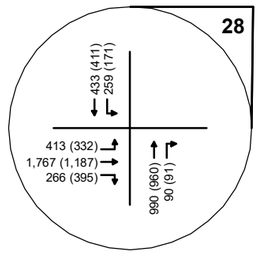


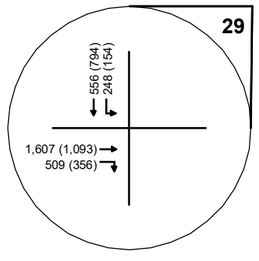


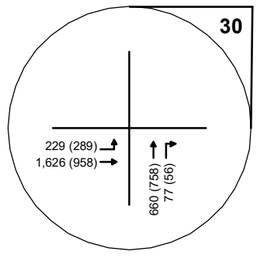










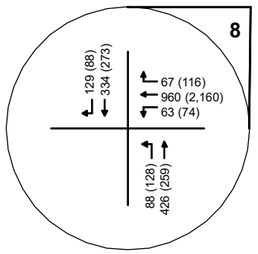


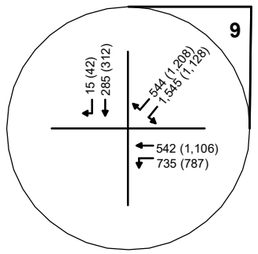
FDOT

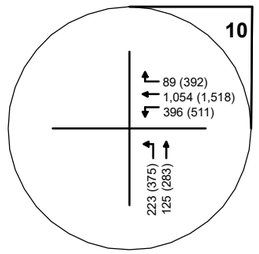
SR 90/SW 8th Street and SW 7th Street PD&E Study

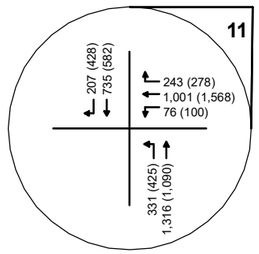
SW 8th Street and SW 7th Street 2025 Peak Hour Volumes

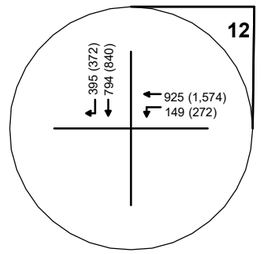
Figure 5.2

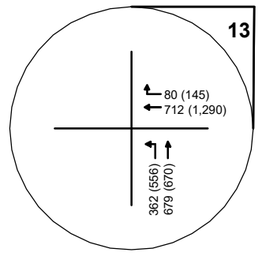


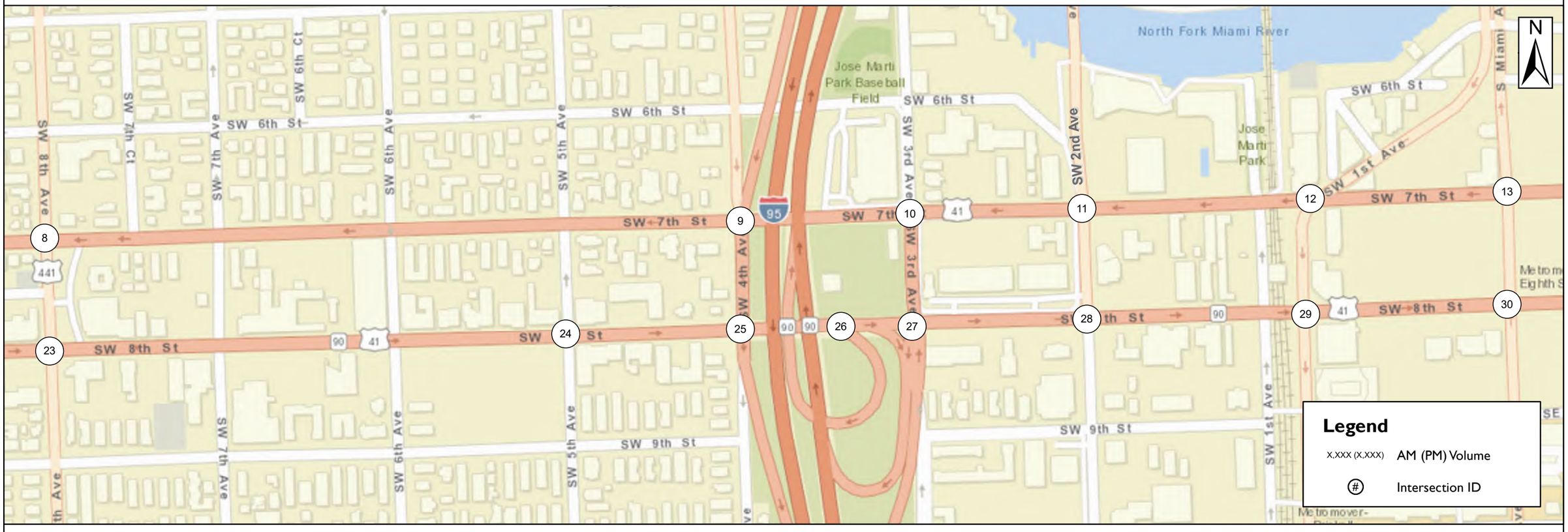


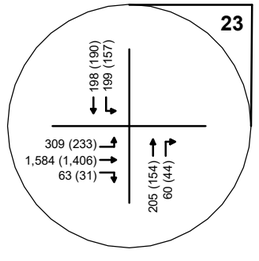


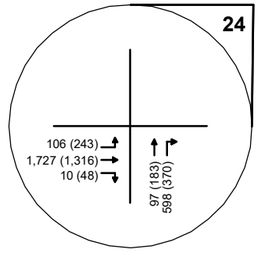


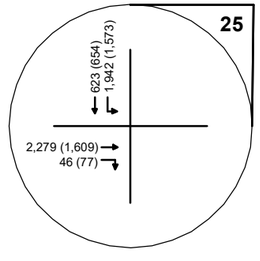


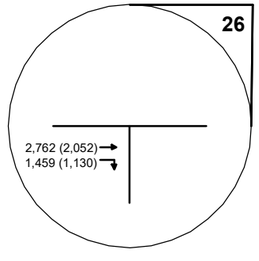


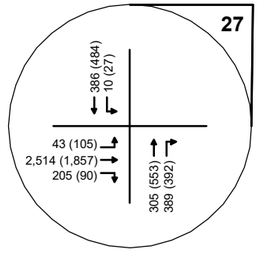


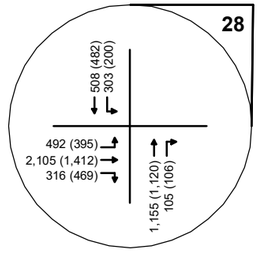


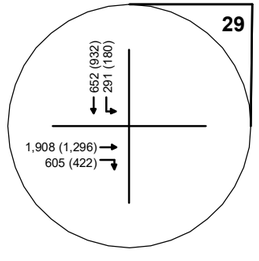


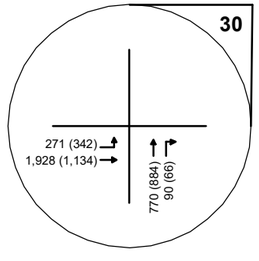










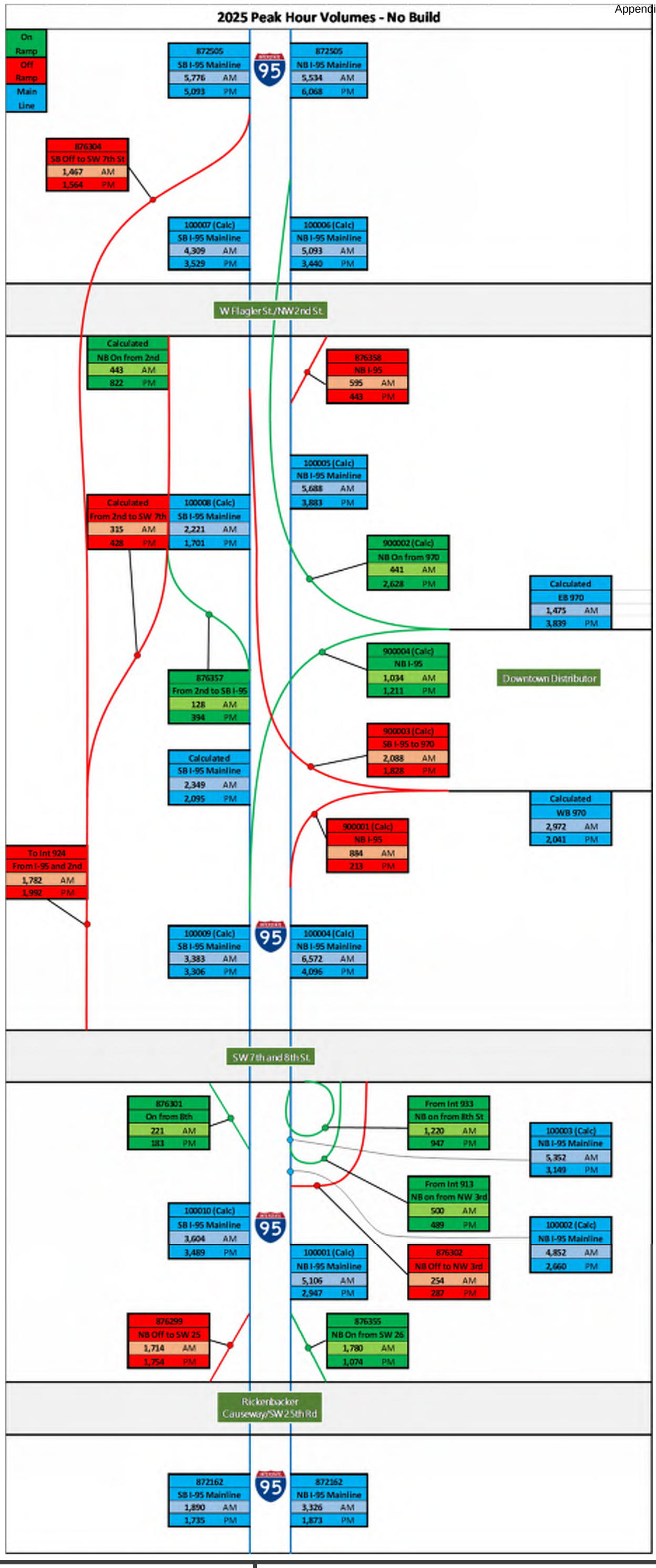


FDOT

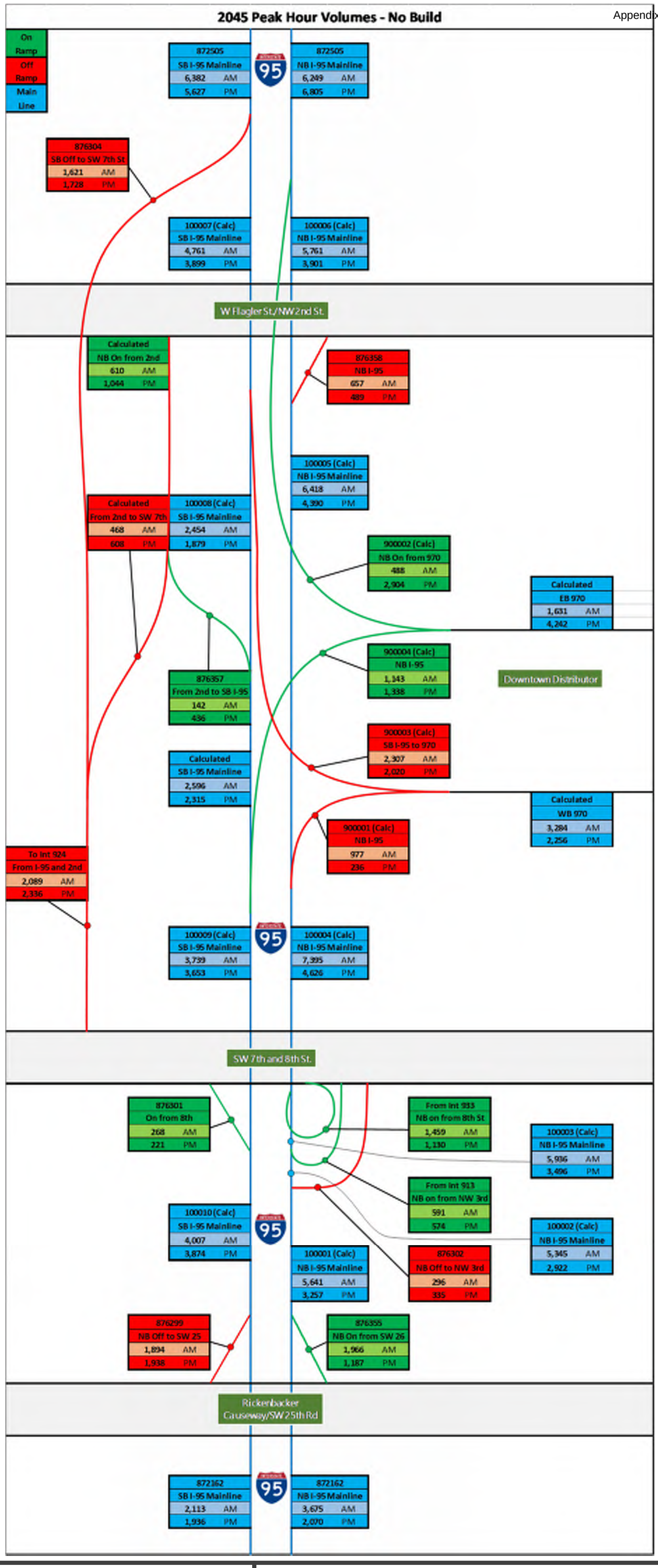
SR 90/SW 8th Street and SW 7th Street PD&E Study

SW 8th Street and SW 7th Street 2045 Peak Hour Volumes

Figure 5.3



FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	No Build I-95 2025 Peak Hour Volumes	Figure 5.4



FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	No Build I-95 2045 Peak Hour Volumes	Figure 5.5

5.4 No Build Alternative – Level of Service Analysis

Traffic operations analyses were conducted for the No Build Alternative for opening year (2025) and design year 2045 conditions. The road network used for the No Build analysis was maintained consistent with the geometry presented under Section 3.2 for existing year (2015) conditions. Traffic volumes used for the analyses were consistent with the forecasted 2025 and 2045 peak hour volumes, per Section 5.3 of the IMR.

Level of Service analyses were conducted in accordance with procedures of the HCM, 2010 Edition. The Highway Capacity Software (HCS) was used for performing calculations for freeway segments (mainline, merge and diverge segments). Synchro models were developed for performing the level of service analyses at the terminal intersections and other project intersections. Signal timings were optimized, as necessary, to improve operating level of service and a peak hour factor of 0.95 was used throughout for the analyses. Detailed output sheets from the level of service analyses are located in Appendix E. The results for I-95 freeway segments are summarized in Figure 5.6 and Figure 5.7 while results for the signalized intersections are summarized in Table 5.1 and Table 5.2. Findings from the level of service analyses are discussed below.

No Build Alternative, Opening Year (2025) Analysis: The following operating conditions are expected for the No Build Alternative in Year 2025.

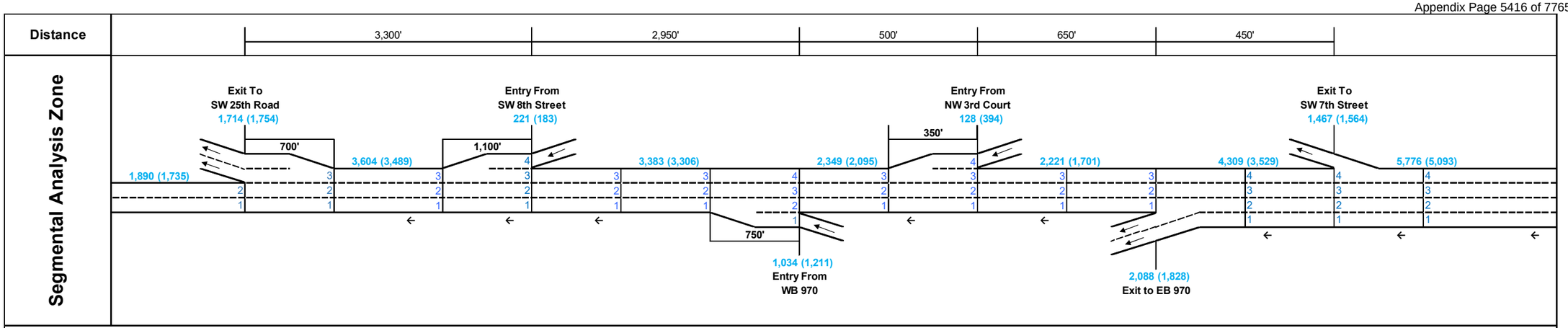
- Freeway Segments: The LOS analyses for Year 2025 indicate all I-95 freeway segments (merge, diverge, weaving, basic) within the project limits, will operate at LOS D or better, during the AM and PM peak periods. This indicates that no adverse traffic operating conditions are expected along I-95 mainline - operating conditions are to be acceptable in the AM and PM peaks.

- Intersections: The LOS analyses for Year 2025 indicate that adverse traffic operating conditions (LOS F) are expected at the following intersections during the AM and/or PM peak periods:
  - SW 8th Street at SW 2th Avenue (LOS F – AM peak)
  - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F – PM peak)

No Build Alternative, Design Year 2045 Analysis: The following operating conditions are expected for the No Build Alternative in Year 2045.

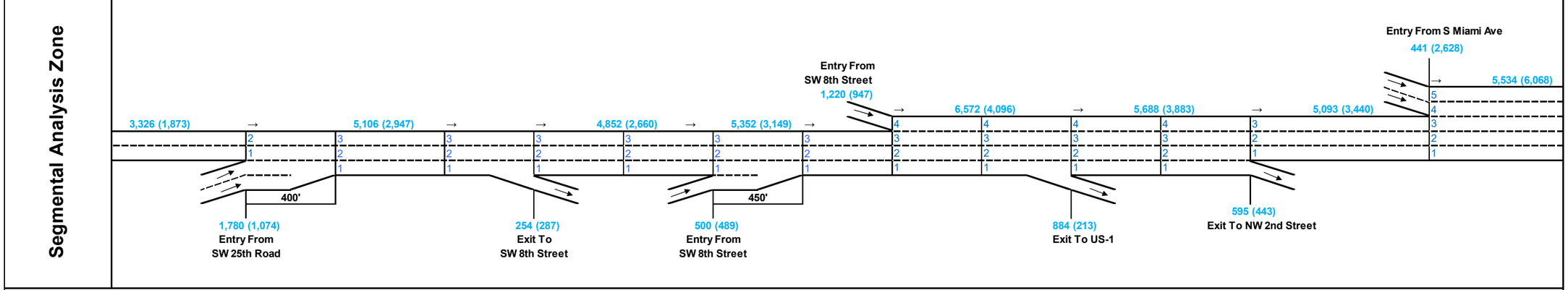
- Freeway Segments: The LOS analyses for Year 2045 indicate that the following freeway segments will operate below the desired LOS D standard:
    - NB I-95, north of on-ramp from SW 25th Road (LOSE – AM peak)
    - NB I-95 at off-ramp to SW 8th Street(LOS E – AM peak)
    - NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS F – AM peak)
    - SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak)

- Intersections: The LOS analyses for Year 2045 indicate that adverse traffic operating conditions (LOS F) are expected at the following intersections during the AM and/or PM peak periods:
    - SW 8th Street at SW 2th Avenue (LOS F – AM peak)
    - SW 7th Street at SW 2nd Avenue (LOS F – PM peak)
    - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F/F – AM/PM peak)



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	B (16.8)	UC (v/c = 0.44)	C (21.3)	B (19.8)	C (20.0)	C (21.9)	B (15.1)	B (13.1)	UC (v/c = 0.53)	C (19.1)	D (34.8)	C (25.6)
PM LOS (Density)	B (15.4)	UC (v/c = 0.45)	C (20.6)	B (19.1)	C (19.5)	C (21.9)	B (14.6)	A (10.1)	UC (v/c = 0.47)	B (15.6)	D (32.6)	C (22.6)



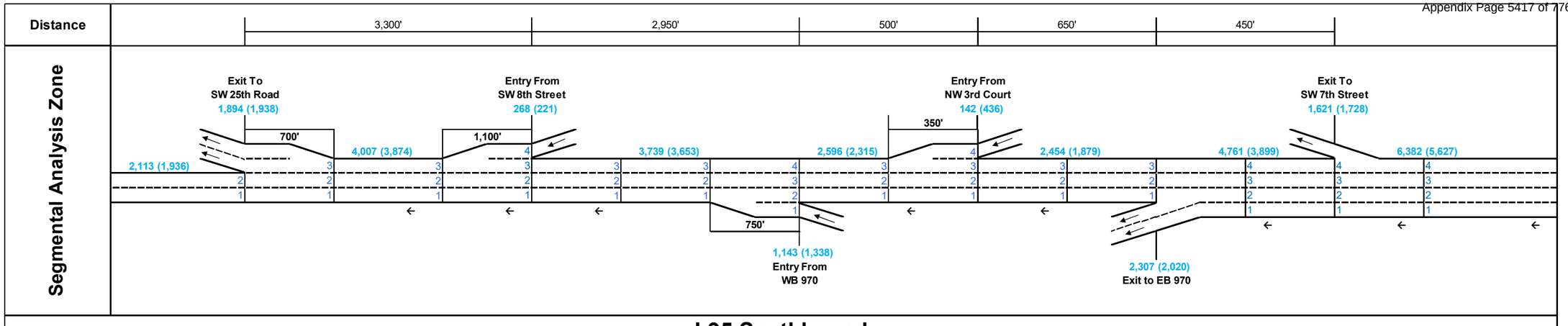
→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave		Basic	Major Merge
AM LOS (Density)	D (29.7)	UC (v/c = 0.45)	D (30.6)	D (33.7)	D (28.8)	D (30.3)	D (34.5, v/c = 0.889)		D (30.5)	UC (v/c = 0.11)
PM LOS (Density)	B (16.6)	UC (v/c = 0.27)	B (17.4)	C (23.1)	B (15.7)	B (19.5)	B (20.0, v/c = 0.553)		C (20.3)	UC (v/c = 0.67)

Two-Sided Weave
D (34.3, v/c = 0.862)
C (20.1, v/c = 0.537)

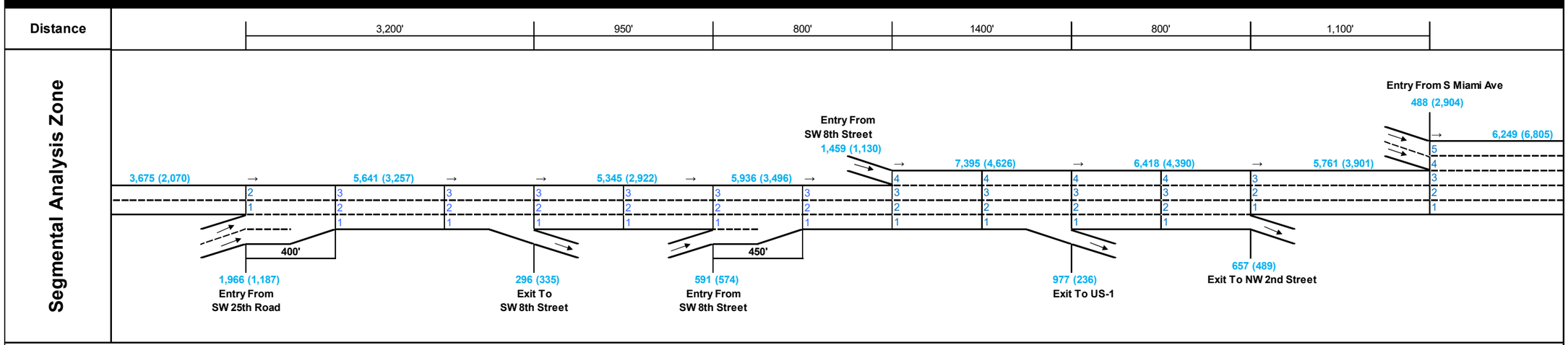
LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	No Build - Opening Year (2025) I-95 Level of Service Analysis	Figure 5.6



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave		Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	D (33.4)	F (v/c = 1.001)		E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	C (21.4)	C (22.9)		C (23.0)	UC (v/c = 0.74)
							Two-Sided Weave			
							E (39.5)			
							C (23.0)			

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 5.1: No Build - Opening Year (2025) Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 8th Ave*	27.7	C	25.7	C
SW 8th Street & SW 5th Ave	36.7	D	33.3	C
SW 8th Street & SW 4th Ave	47.7	D	47.7	D
SW 8th Street & SW 3rd Ave	31.4	C	33.6	C
SW 8th Street & SW 2nd Ave*	118.0	F	37.2	D
SW 8th Street & SW 1st Ave	53.9	D	53.6	D
SW 8th Street & S Miami Ave	40.7	D	45.4	D
SW 7th Street & S Miami Ave*	17.0	B	25.4	C
SW 7th Street & SW 1st Ave*	16.3	B	26.9	C
SW 7th Street & SW 2nd Ave	33.8	C	63.3	E
SW 7th Street & SW 3rd Ave	30.4	C	49.3	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	50.5	D	111.2	F
SW 7th Street & SW 8th Ave	20.2	C	43.5	D

*LOS was calculated using the HCM 2000 methodology

Table 5.2: No Build – Design Year (2045) Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 8th Ave*	44.4	D	29.8	C
SW 8th Street & SW 5th Ave	53.0	D	40.3	D
SW 8th Street & SW 4th Ave	54.9	D	52.8	D
SW 8th Street & SW 3rd Ave	44.9	D	40.7	D
SW 8th Street & SW 2nd Ave*	202.1	F	77.3	E
SW 8th Street & SW 1st Ave	74.0	E	63.3	E
SW 8th Street & S Miami Ave	44.4	D	47.7	D
SW 7th Street & S Miami Ave*	19.0	B	23.6	C
SW 7th Street & SW 1st Ave*	18.2	B	28.6	C
SW 7th Street & SW 2nd Ave	28.7	C	105.6	F
SW 7th Street & SW 3rd Ave	33.3	C	60.7	E
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	90.1	F	192.8	F
SW 7th Street & SW 8th Ave	22.4	C	57.5	E

*LOS was calculated using the HCM 2000 methodology

6.0 SR 90/SW 8th STREET/SW 7th STREET BUILD ALTERNATIVES

The SR 90/SW 8th Street/SW 7th Street PD&E Study examined two tiers of build alternatives covering the limits of the study network. Alternatives were first considered for the configuration of SW 8th Street and SW 7th Street. Secondly, alternative configurations were considered for the I-95/SR 90 Interchange that would be consistent with the recommended configuration for SW 8th Street and SW 7th Street.

The alternatives analysis for SW 8th Street and SW 7th Street is document in the associated Preliminary Engineering Report (PER). The alternatives analysis examined multiple configurations and traffic flow patterns for SW 8th Street and SW 7th Street. The alternatives are described below and illustrated in Figures 6.1 through 6.7 included:

Alternative 1: Two Lanes, Two-Way Alternative (Figure 6.1): This alternative reconfigures SW 8th Street and SW 7th Street for two-way traffic flow. Two (2) through lanes (one eastbound and one westbound) are provided on SW 8th Street and SW 7th Street. The typical sections consists of the following:

- SW 8th Street: one eastbound lane + one westbound lane + center two-way left turn lane. The typical section on SW 8th Street also accommodates on-street parking on both sides of the roadway.
- SW 7th Street: one eastbound lane + one westbound lane + center two-way left turn lane.

Alternative 2: Two Lanes, Two-Way + Transit Lane (Figure 6.2): This alternative reconfigures SW 8th Street and SW 7th Street for two-way traffic flow. In addition, one lane is repurposed for transit operations. The typical sections consists of the following:

- SW 8th Street: one eastbound lane + one westbound lane + one eastbound transit lane. The typical section on SW 8th Street also accommodates on-street parking on both sides of the roadway.
- SW 7th Street: one eastbound lane + one westbound lane + one westbound transit lane.

Alternative 2A: Two Lanes, Two-Way + Bicycle Lane (Figure 6.3): This alternative reconfigures SW 8th Street and SW 7th Street for two-way traffic flow. In addition, one lane is repurposed to accommodate a bicycle lane. The difference in width between the repurposed travel lane (11 feet) and the proposed

bicycle lane (7 feet) allows for wider sidewalks (+ 4 feet) on SW 8th Street and SW 7th Street. The typical sections consists of the following:

- SW 8th Street: one eastbound lane + one westbound lane + one bicycle lane. The typical section on SW 8th Street also accommodates on-street parking on both sides of the roadway.
- SW 7th Street: one eastbound lane + one westbound lane + one bicycle lane.

Alternative 3: Two Lane, One-Way (Figure 6.4): This alternative maintains one-way traffic flow on SW 8th Street and SW 7th Street. Two (2) eastbound lanes are provided on SW 8th Street and two (2) westbound lanes are provided on SW 7th Street. One lane is repurposed on SW 8th Street and on SW 7th Street to accommodate a bicycle lane. The difference in width between the repurposed travel lane (11 feet) and the proposed bicycle lane (7 feet) allows for wider sidewalks (+ 4 feet) on SW 8th Street and SW 7th Street. The typical sections consists of the following:

- SW 8th Street: two eastbound lanes + one bicycle lane. The typical section on SW 8th Street also includes on-street parking on both sides of the roadway.
- SW 7th Street: two westbound lanes + one bicycle lane

Alternative 4: Three Lane, One-Way (Figure 6.5): This alternative retains the existing configuration and one-way traffic flow along SW 8th Street and SW 7th Street. The roadway geometry is similar to existing except for modifications at the I-95 Interchange. The typical section on each facility consists of the following:

- SW 8th Street: three eastbound lanes. The typical section on SW 8th Street also includes on-street parking on both sides of the roadway.
- SW 7th Street: three westbound lanes

Alternative 5 (Figure 6.6):

This alternative reverses the directional traffic flow on SW 8th Street and SW 7th Street. In Alternative 5, SW 8th Street is modified for westbound traffic flow, while SW 7th Street is modified for eastbound traffic flow. The typical section on SW 8th Street and SW 7th Street are as follows:

- SW 8th Street: Three (3) lanes one-way westbound with on-street parking on both sides of the street.

- SW 7th Street: Three (3) lanes one-way eastbound. No on-street parking in provided on SW 7th Street, similar to existing conditions.

Alternative 6 (Figure 6.7):

In Alternative 6, directional traffic flow along SW 8th Street (one-way eastbound) and SW 7th Street (one-way westbound) is maintained per existing conditions. One eastbound lane on SW 8th Street is repurposed as a shared lane that serves through traffic during peak periods while also providing on-street parking during off-peak periods. Alternative 6 also reduces the through lanes on SW 7th Street from three lanes (existing) to two lanes (proposed). This reduction in travel lanes along SW 7th Street allows for construction of a buffer separated bicycle lane. The typical section on SW 8th Street and SW 7th Street are as follows:

- SW 8th Street: Two eastbound through lanes + one shared eastbound through lane/parking lane (shared lane used for on-street parking during off-peak periods). Typical section on SW 8th Street also accommodates parking on the north side, a bicycle lane, and sidewalks on both sides of the street.
- SW 7th Street: Two (2) lanes one-way eastbound. Typical section on SW 7th Street also accommodates a bicycle lane and sidewalks on both sides of the street.

SR 90/SW 8th Street/SW 7th Street Recommended Alternative

Following extensive analyses and coordination with stakeholder agencies and local communities, it was determined that Alternative 4 was the Recommended Alternative for SW 8th Street and SW 7th Street (details contained in the Preliminary Engineering Report). This alternative maintains the existing configuration and traffic flow pattern for SR 90 - 3 lanes eastbound on SW 8th Street and 3 lanes westbound on SW 7th Street. Alternative interchange concepts were considered for the I-95/SR 90 Interchange that would complement the recommended configuration for SW 8th Street/SW 7th Street while proposing modifications that would address safety and operational issues within the influence area of the interchange. These interchange alternatives are discussed following section of the IMR.

Figure 6.1: SR 90 Alternative 1: -Two Lanes, Two-Way Traffic

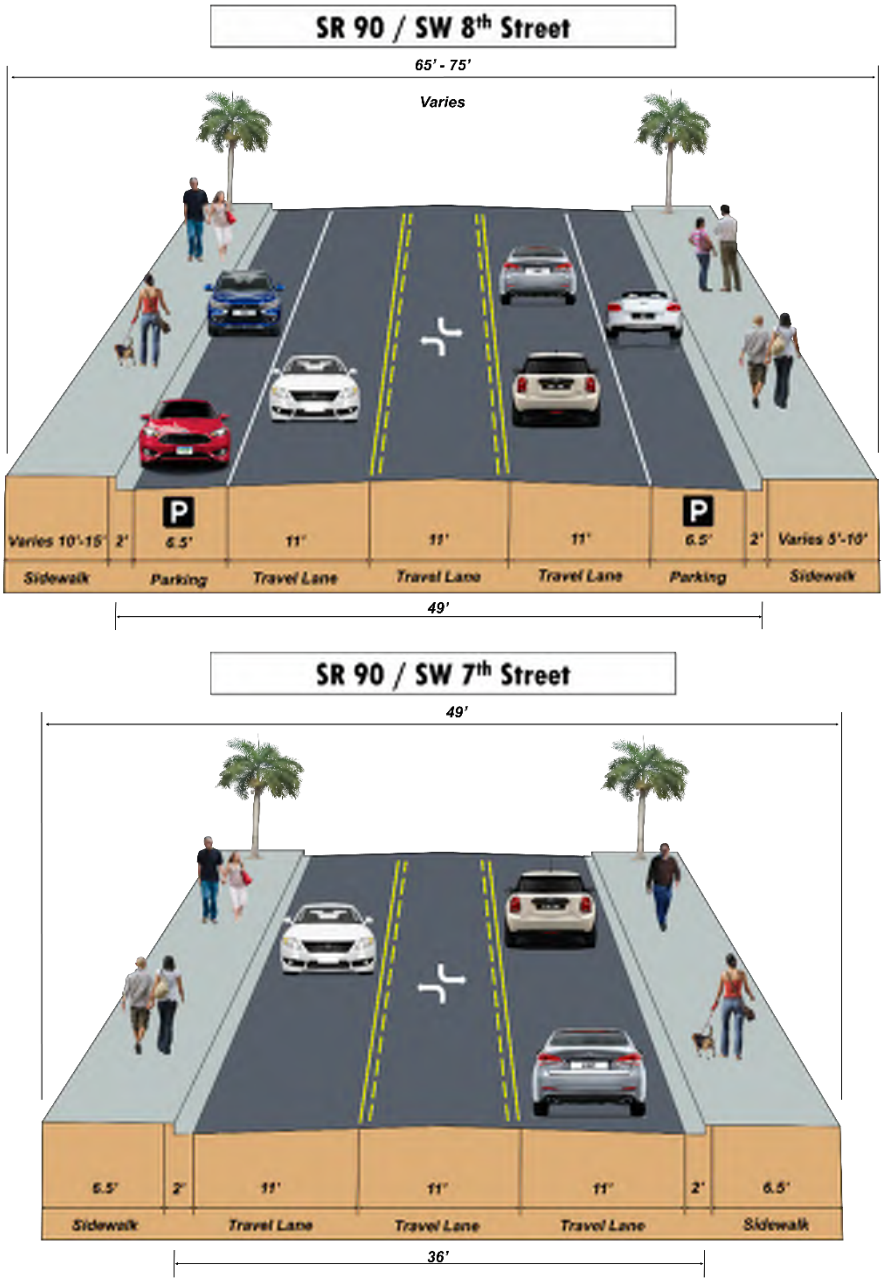


Figure 6.2: SR 90 Alternative 2 – Two-Way with Transit

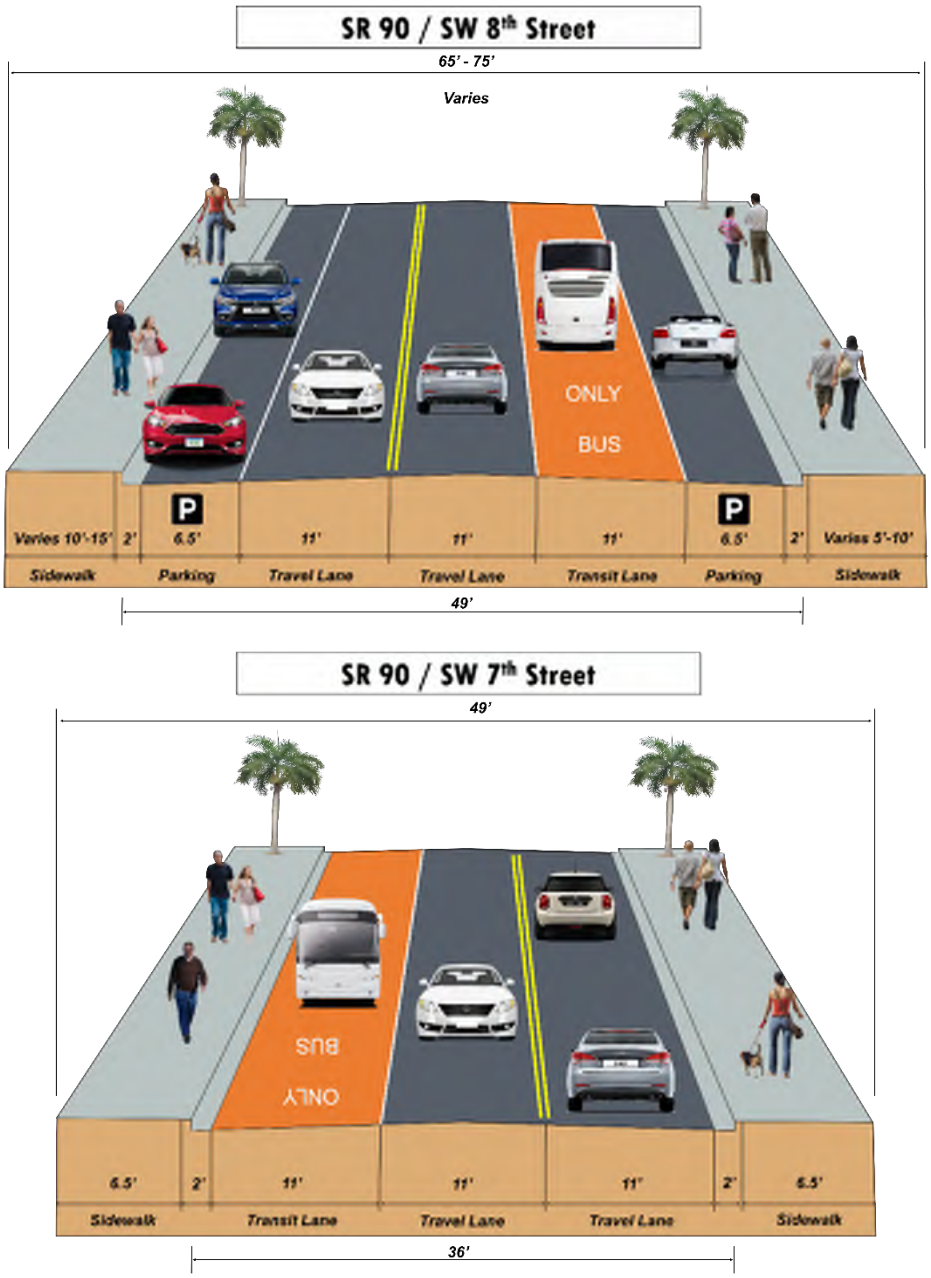


Figure 6.3: SR 90 Alternative 2A – Two-Way with Bicycle Lane

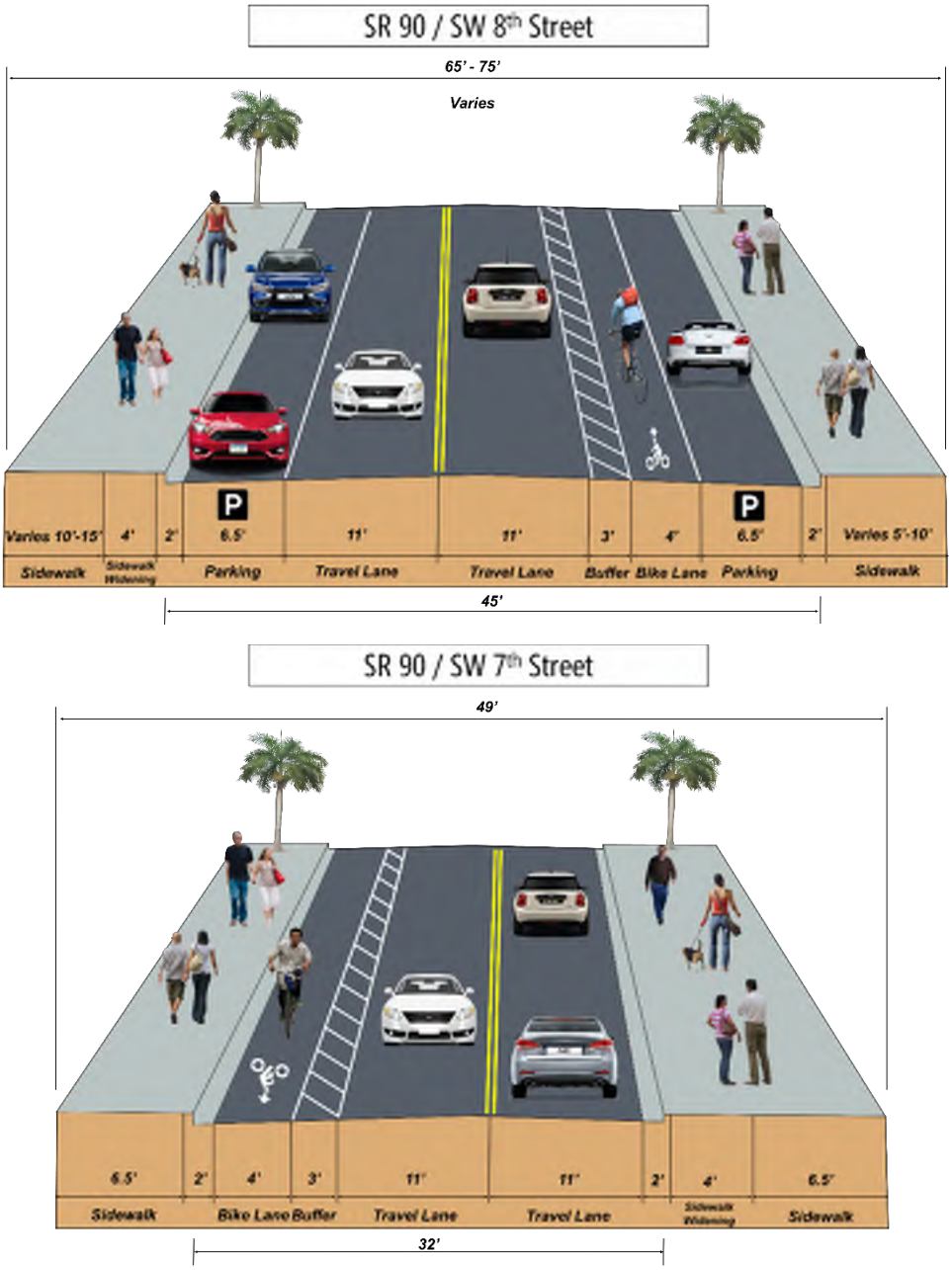


Figure 6.4: SR 90 Alternative 3 – Two Lanes, One-Way with Bicycle Lane

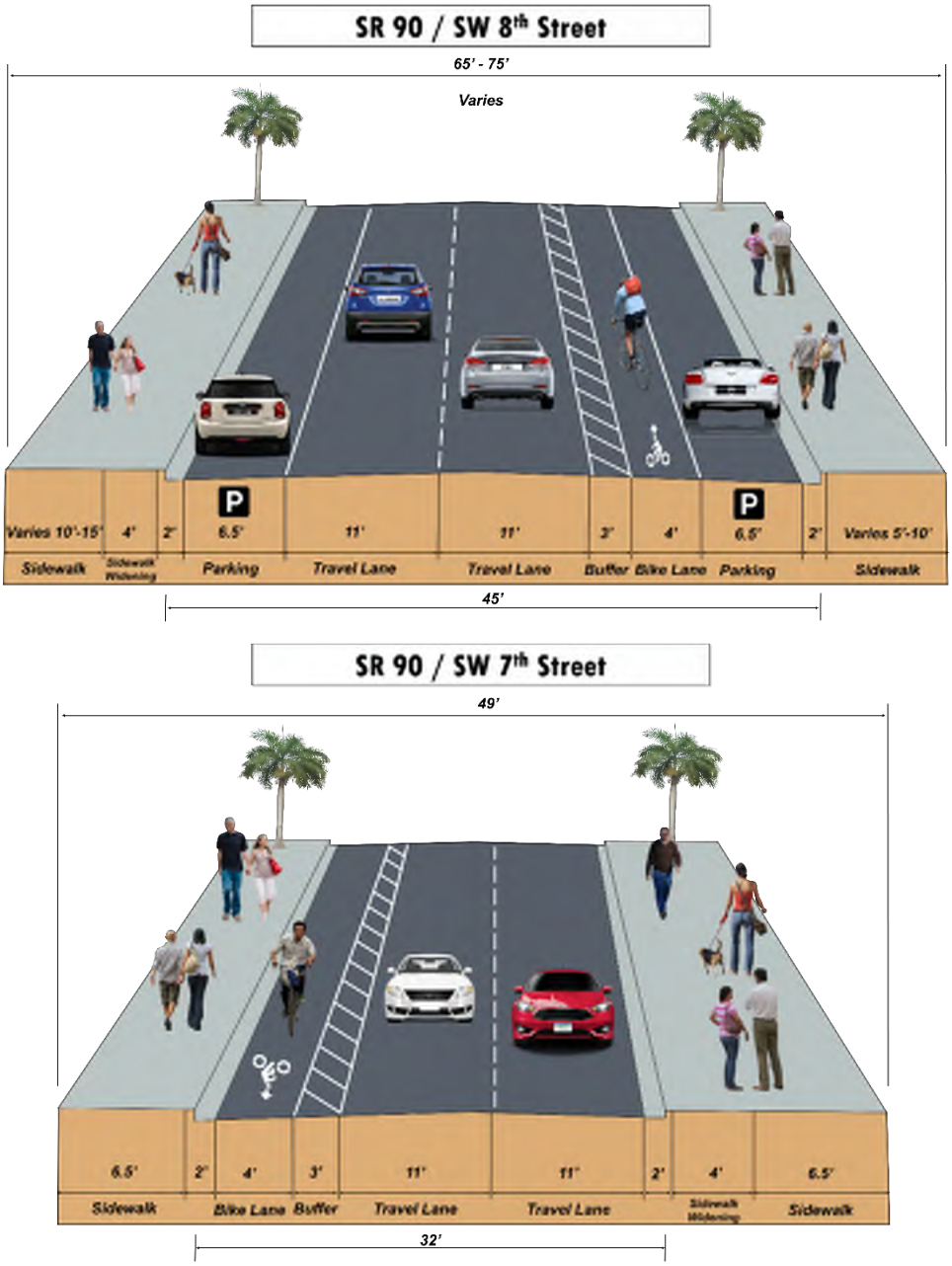


Figure 6.5: SR 90 Alternative 4 – Three Lanes, One-Way

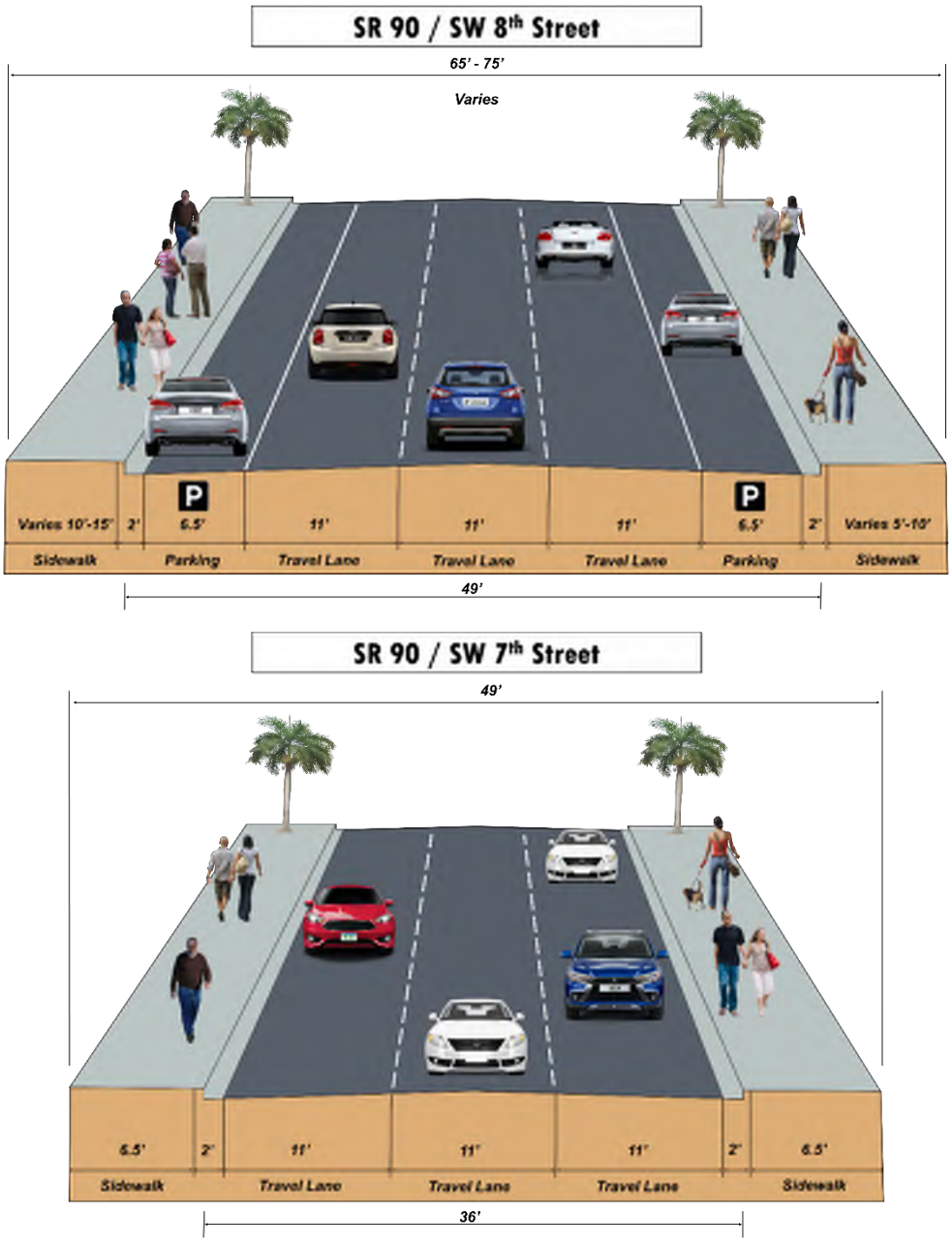


Figure 6.6: SR 90 Alternative 5 – Reverse Flow

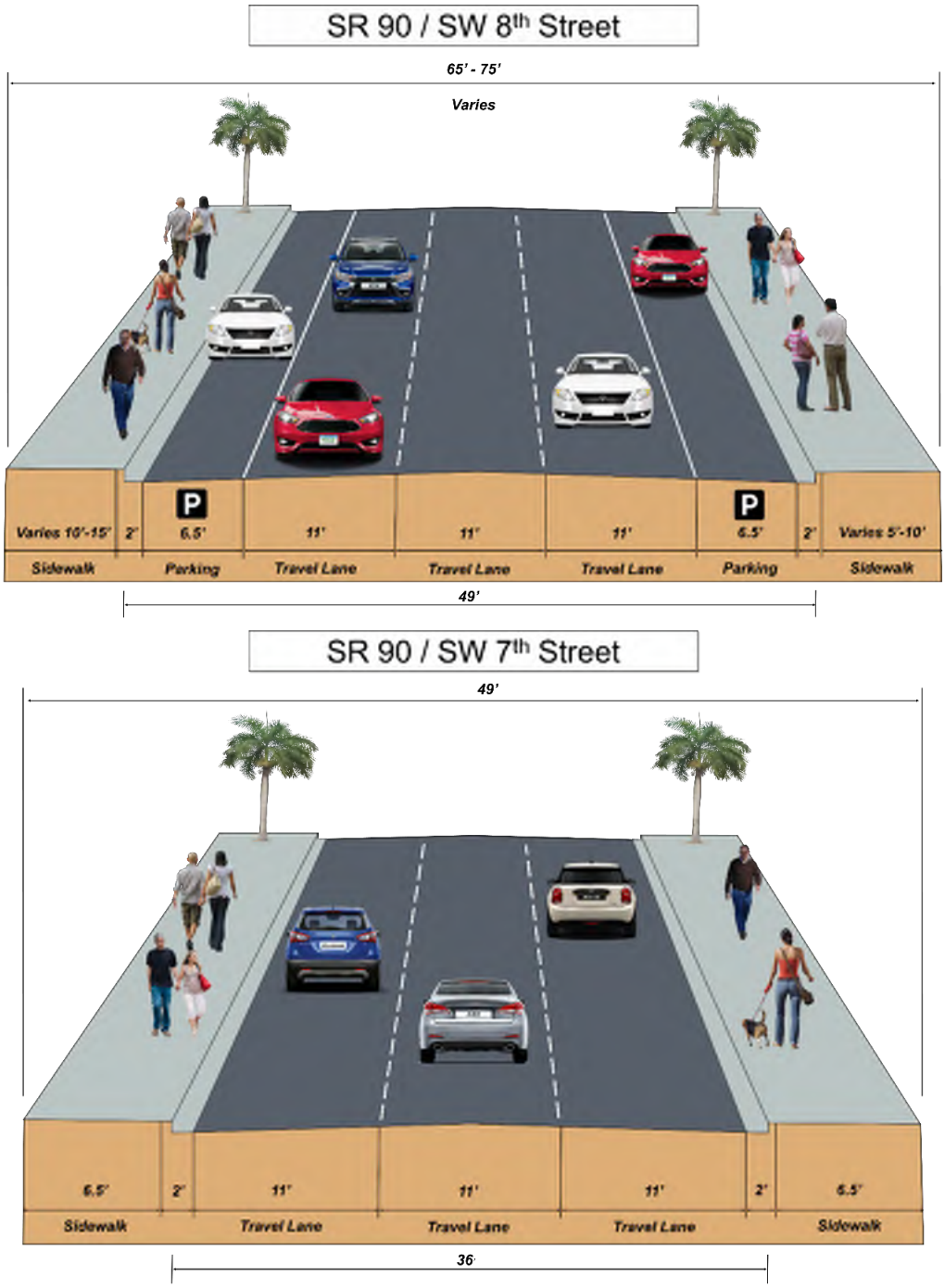
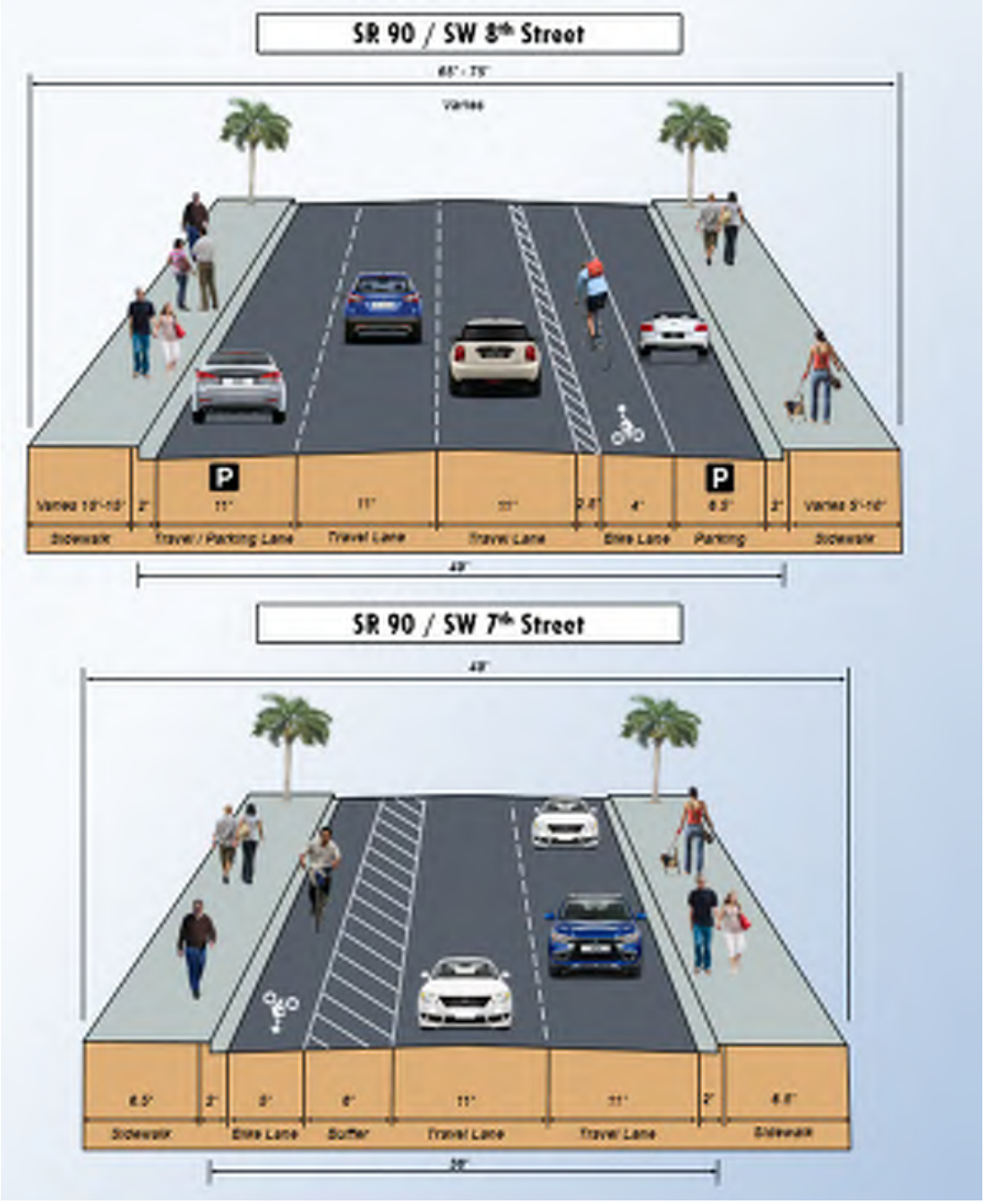


Figure 6.7: SR 90 Alternative 6 – 3 Lanes EB, 2 Lanes WB



7.0 I-95/SR 90 INTERCHANGE BUILD ALTERNATIVES

7.1 Considered Interchange Build Alternatives

Various potential design modifications were considered for the I-95/SR 90 Interchange. The design modifications were developed aimed at addressing the following:

- Consistency with the Recommended Alternative for future configuration and traffic flow pattern on SW 8th Street and SW 7th Street (discussed under Section 6.1 of the IMR)
- Mitigating or minimizing existing traffic safety and operational issues within the influence area of the interchange
- Meeting the long term (year 2045) travel demand needs at the interchange.

The interchange alternatives considered for the project are described below.

Interchange Alternative B1 (Figure 7.1): This modified I-95 Interchange design concept facilitates eastbound traffic flow on SW 8th Street and westbound traffic flow SW 7th Street (consistent with SR 90/SW 8th Street/SW 7th Street recommended Alternative). The proposed design concept and the associated 2045 traffic flows are depicted in Figure 7.1 The proposed I-95 Interchange Alternative B-1 incorporates the following.

- New flyover ramp for accommodating movements from SB I-95 to eastbound SW 8th Street. The proposed SB to EB flyover elevates above SW 7th Street/SW 4th Avenue Intersection and SW 8th Street/SW 3rd Avenue Intersection. The proposed new flyover connects to the existing I-95 SB off-ramp to SW 7th Street – it does not introduce a new connection to I-95.
- New flyover ramp for accommodating movements from westbound SW 7th Street to NB I-95. The proposed WB to NB ramp elevates above SW 7th Street/SW 3rd Avenue Intersection and it introduces a new connection (on-ramp) to NB I-95.
- The two existing loop ramps for movements from eastbound SW 8th Street to NB I-95 are modified to prevent direct access to these ramps from SW 3rd Avenue.

- The intersection at SW 8th Street and SW 3rd Avenue is modified to prohibit southbound through (SBT) movements.
- Traffic flows and intersection configurations are not impacted (match existing) for all segments of SR 90/SW 8th Street/SW 7th Street located east of SW 2nd Avenue and west of SW 4th Avenue.

Interchange Alternative B2 (Figure 7.2: This modified I-95 Interchange design concept facilitates eastbound traffic flow on SW 8th Street and westbound traffic flow SW 7th Street (consistent with SR 90/SW 8th Street/SW 7th Street recommended Alternative). The proposed design concept and the associated 2045 traffic flows are depicted in Figure 7.2 The proposed I-95 Interchange Alternative B-2 incorporates the following.

- New flyover ramp for accommodating movements from westbound SW 7th Street to NB I-95. The proposed WB to NB ramp elevates above SW 7th Street/SW 3rd Avenue Intersection and it introduces a new connection (on-ramp) to NB I-95.
- Traffic flows and intersection configurations are not impacted (match existing) for all segments of SR 90/SW 8th Street/SW 7th Street located east of SW 2nd Avenue and west of SW 4th Avenue.

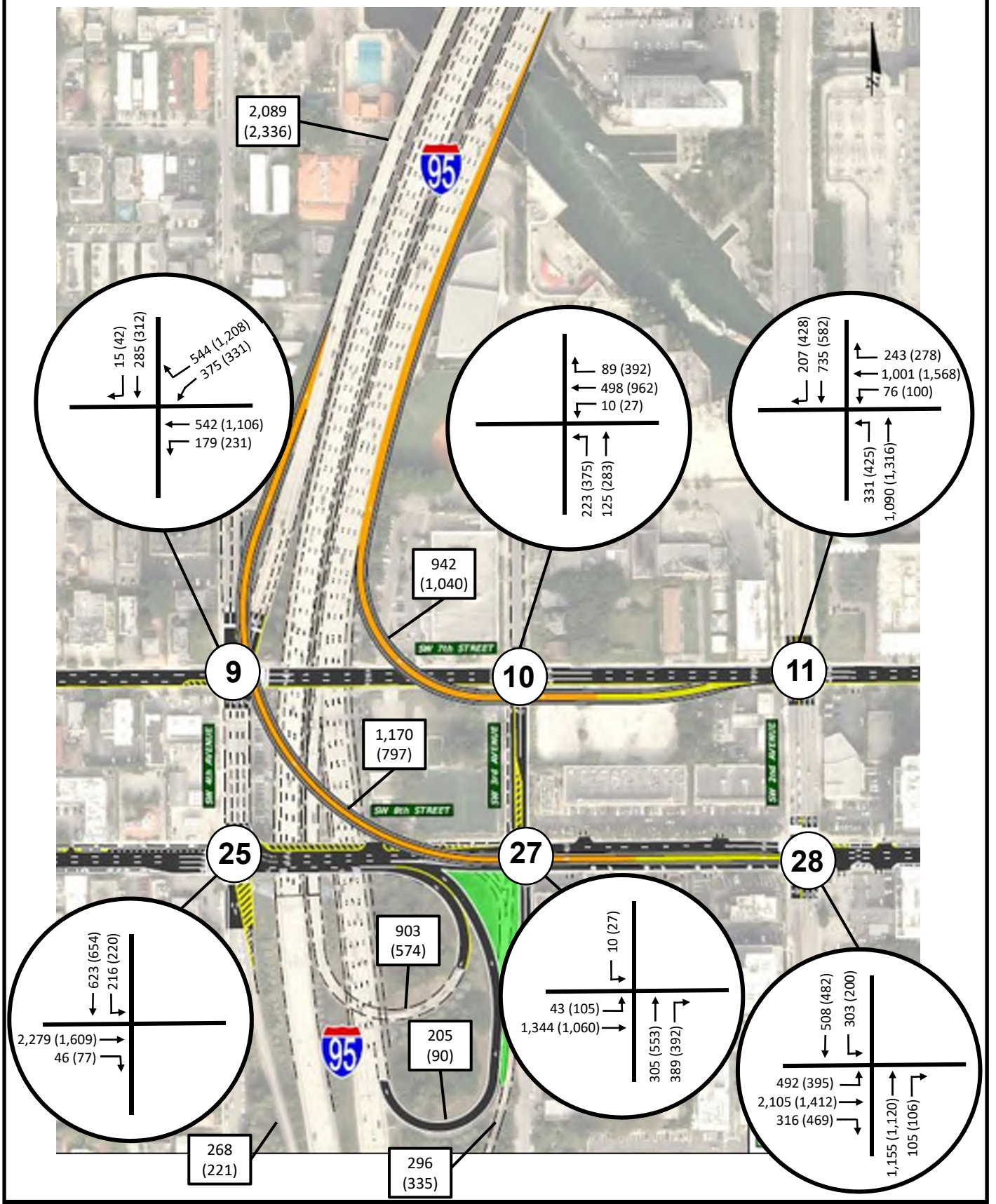
Interchange Alternative B3 (Figure 7.3): This modified I-95 Interchange design concept facilitates eastbound traffic flow on SW 8th Street and westbound traffic flow SW 7th Street (consistent with SR 90/SW 8th Street/SW 7th Street recommended Alternative). The proposed design concept and the associated 2045 traffic flows are depicted in Figure 7.3 The proposed I-95 Interchange Alternative B-3 incorporates the following.

- New flyover ramp for accommodating movements from SB I-95 to eastbound SW 8th Street. The proposed SB to EB flyover elevates above SW 7th Street/SW 4th Avenue Intersection and SW 8th Street/SW 3rd Avenue Intersection. The proposed new flyover connects to the existing I-95 SB off-ramp to SW 7th Street – it does not introduce a new connection to I-95.
- The two existing loop ramps for movements from eastbound SW 8th Street to NB I-95 are modified to prevent direct access to these ramps from SW 3rd Avenue.
- The intersection at SW 8th Street and SW 3rd Avenue is modified to prohibit southbound through (SBT) movements.

- Traffic flows and intersection configurations are not impacted (match existing) for all segments of SR 90/SW 8th Street/SW 7th Street located east of SW 2nd Avenue and west of SW 4th Avenue.

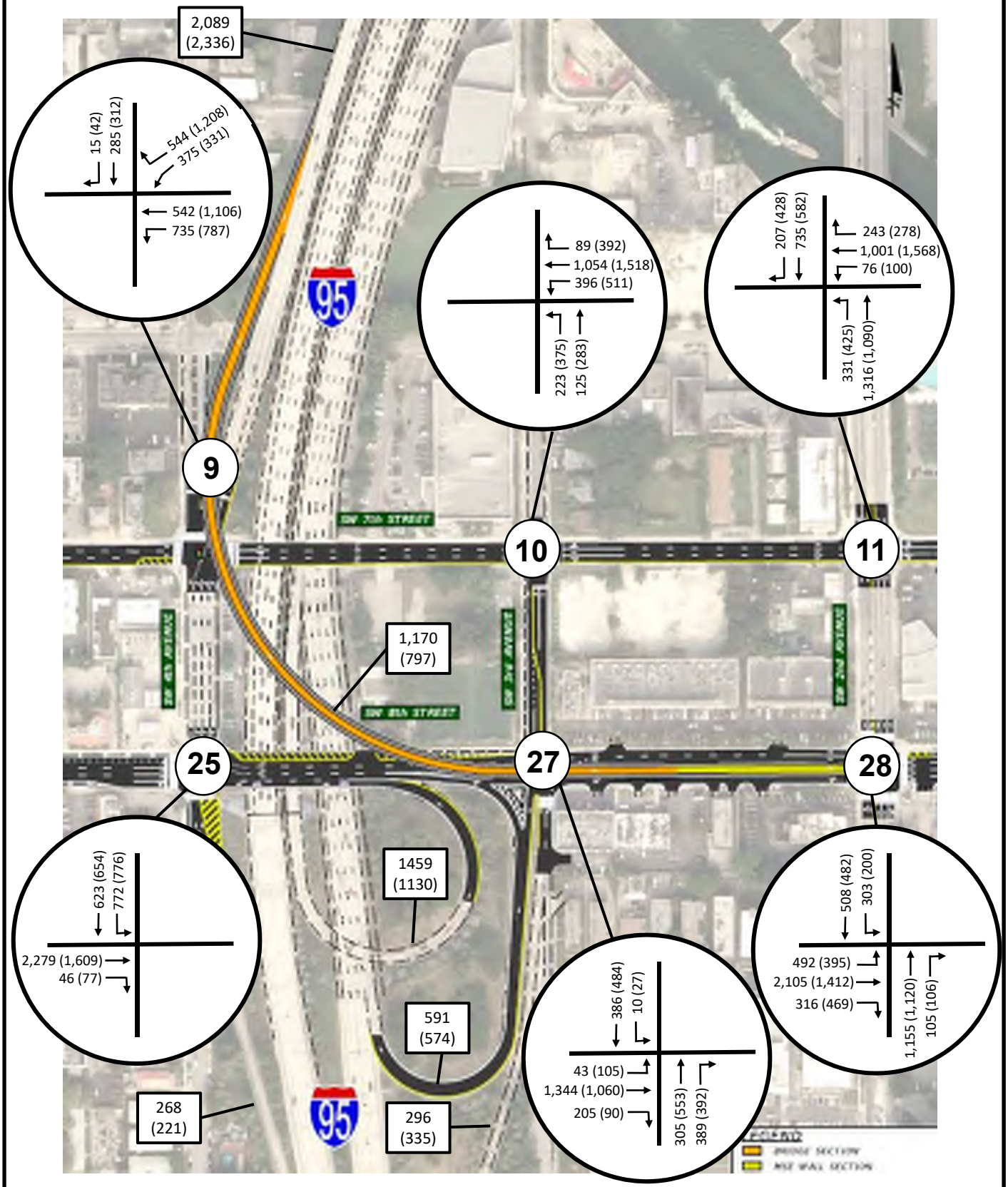
Interchange Alternative B4 (Figure 7.4): This modified I-95 Interchange design concept facilitates eastbound traffic flow on SW 8th Street and westbound traffic flow SW 7th Street (consistent with SR 90/SW 8th Street/SW 7th Street recommended Alternative). The proposed design concept and the associated 2045 traffic flows are depicted in Figure 7.3 The proposed I-95 Interchange Alternative B-3 incorporates the following.

- The segment of SW 3rd Avenue between SW 8th Street and SW 7th Street is modified to include three lanes, one-way southbound. This modification is intended to provide the primary access to NB I-95 for traffic coming from WB SW 7th Street.
- The intersection at SW 8th Street and SW 3rd Avenue is modified to allow two through lanes from SB SW 3rd Avenue to NB I-95 ON-Ramp. In addition, the NB approach of SW 3rd Avenue is modified to accommodate two right turn lanes (northbound through is prohibited).
- Intersection at SW 7th Street and SW 3rd Avenue is modified to remove traffic signal – no need for signal control as there are no conflicting movements
- Traffic flows and intersection configurations are not impacted (match existing) for all segments of SR 90/SW 8th Street/SW 7th Street located east of SW 2nd Avenue and west of SW 4th Avenue.
- Traffic flows and lane configurations are not impacted (match existing) along all segments of NB I-95 and SB I-95.

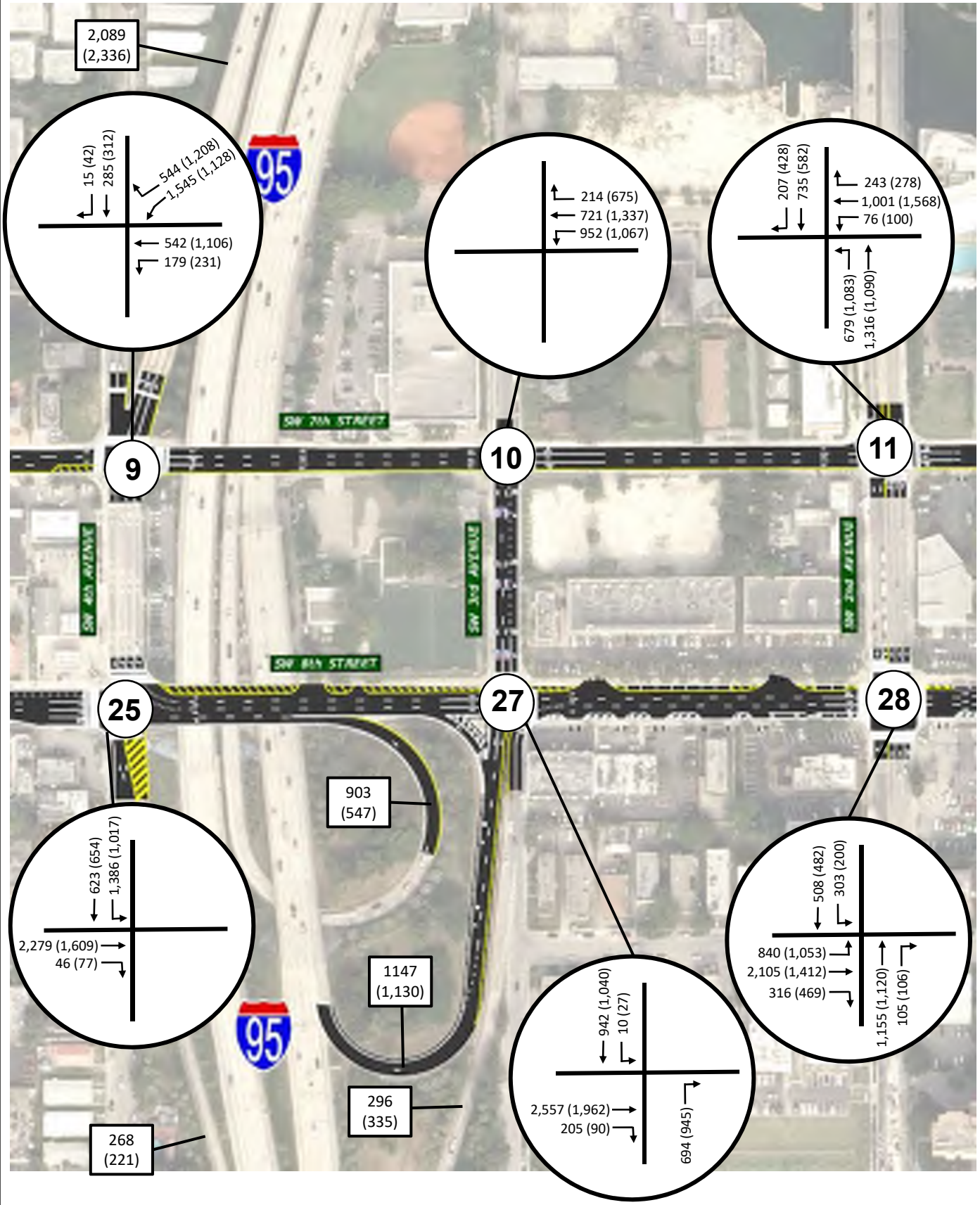


FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Interchange Alternative B-1 2045 Peak Hour Volumes	Figure 7.1

FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Interchange Alternative B-2 2045 Peak Hour Volumes	Figure 7.2



FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Interchange Alternative B-3 2045 Peak Hour Volumes	Figure 7.3



FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Interchange Alternative B-4 2045 Peak Hour Volumes	Figure 7.4

7.2 Level of Service Analysis for I-95 Interchange Alternatives

Level of service analyses were conducted for each alternative interchange concept in order to evaluate and compare the expected traffic operating conditions in the design year 2045. Level of service analyses were based on the HCM 2010 procedures consistent with the methodology described under Section 2 of the IMR. Intersections were analyzed using Synchro software and freeway segments were evaluated using HCS software. The scope of the analyses included the I-95 freeway segments (mainline, merge, diverge and weaving segments) and operations at the intersections along SR 90/SW 8th Street/SW 7th Street that would be directly impacted by the proposed design modifications. These intersections include:

- SW 8th Street at SW 4th Avenue
- SW 8th Street at SW 3rd Avenue
- SW 8th Street at SW 2nd Avenue
- SW 7th Street at SW 4th Avenue
- SW 7th Street at SW 3rd Avenue
- SW 7th Street at SW 2nd Avenue

Operations analyses for all build alternatives assumed traffic flows per the No Build traffic forecast with traffic volumes reassigned, as necessary, to match each design concept. The resulting traffic volume assignments are depicted in Figures 7.1 through 7.4 for each of the build alternatives.

Similar to the analyses performed for the No Build Analysis, the HCM analyses for the Build Alternatives required simplified geometric assumptions along the mainline for the evaluating the complex weaving segment between the NB on-ramp from SW 8th Street and the NB off-ramps to US 1 and NW 2nd Avenue. The simplified geometric assumptions were as follows:

- Two sided weave from SW 8th Street On-Ramp to US 1 Off-Ramp per Alternative B1 and B2. For this analysis, traffic using the SW 7th Street intermediate on-ramp was assumed to enter the I-95 mainline south of SW 8th Street. In this assumption, traffic using SW 7th Street on-ramp is added to the freeway to freeway volume.
- Two sided weave from SW 8th Street On-Ramp to NW 2nd Street Off-Ramp per Alternative B1 and B2. For this analysis, traffic using the SW 7th Street intermediate on-ramp was assumed to enter

the I-95 mainline south of SW 8th Street. In addition, traffic using the intermediate US 1 Off-Ramp was assumed to continue north on I-95, beyond NW 2nd Avenue On-Ramp. Following these assumptions, traffic using SW 7th Street on-ramp and the US 1 Off-ramp are added to the freeway to freeway volume in the analysis.

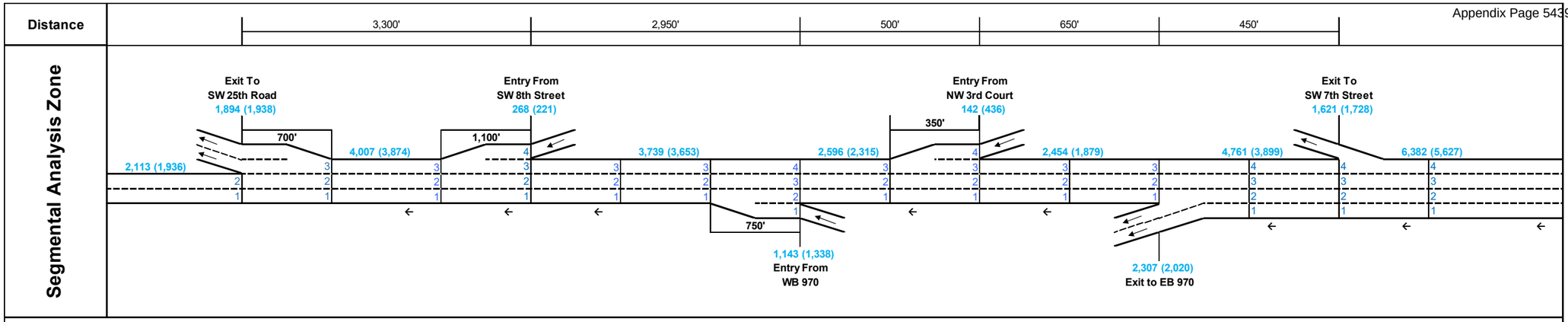
The HCS analyses further assumed that for in Build Alternatives B1 and B2 (incorporating the proposed new on-ramp from 7th Street) there would be a reduction (approximately 50% assumed) in the two-sided weave movements from SW 8th Street on-ramp to US 1 off-ramp and from SW 8th Street on-ramp to NW 2nd Avenue off-ramp. This reduction in the two sided weave movement is reasonable given that the new NB on-ramp from SW 7th Street would provide an alternative route for accomplishing this movement.

Detailed results from the interchange LOS analyses are presented under Appendix F. Results for I-95 segments are summarized in Figures 7.5 through 7.8 and results for the intersection LOS analyses are summarized in Tables 7.1 through 7.4. Findings from the level of service analyses are discussed below.

I-95 Interchange Alternative B1:

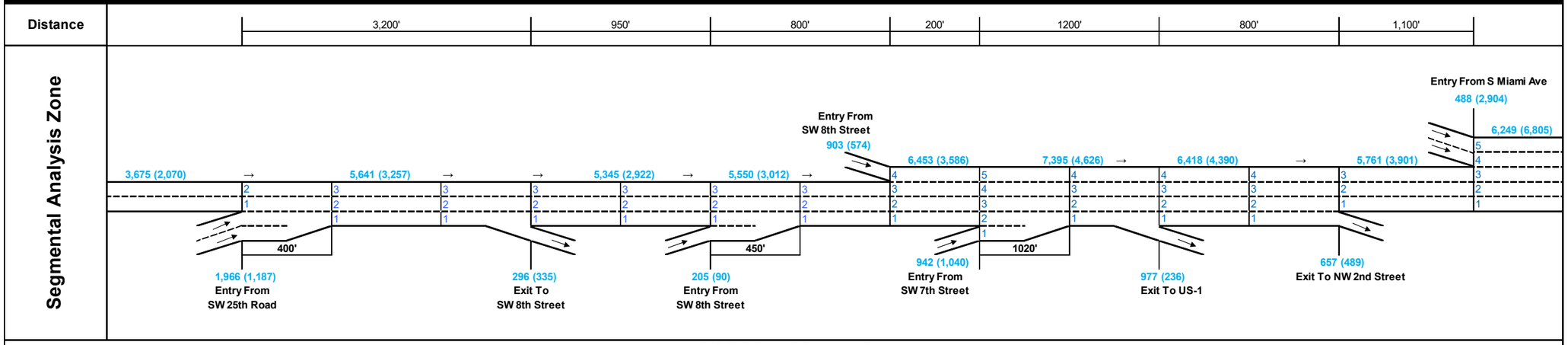
- Freeway Operations (Figure 7.6): Alternative B1 provides the best operating conditions along NB and SB I-95 (matches Alternative B2). The analyses indicate that the implementation of Alternative B-1 will result in no failing (LOS F) freeway segments along NB or SB I-95. However, some segments of I-95 mainline are expected to operate below the desired LOS D standard. These include:
    - NB I-95, north of on-ramp from SW 25th Road (LOSE – AM peak)
    - NB I-95 at off-ramp to SW 8th Street(LOS E – AM peak)
    - NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS E – AM peak). This weaving segment performs better than the No Build as the new on-ramp from SW 7th Street generates a decrease in the two-sided weave movements (from SW 8th Street on-ramp to US 1 off-ramp and from SW 8th Street on-ramp to NW 2nd Street off-ramp).
    - SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak)

- Intersection Operations (Table 7.1): Alternative B1 provides the best overall operating conditions at the impacted intersections as it provides the best potential for displacing traffic from the critical intersections in the network. Nonetheless, some intersections are expected to operate below the desired LOS E standard, due to the high traffic demand. The analyses indicate that during the AM and PM peak periods, Alternative B1 will generate operating conditions below LOS E at the following intersections:
    - SW 8th Street at SW 2th Avenue (LOS F – AM peak)
    - SW 7th Street at SW 2nd Avenue (LOS F – PM peak)
    - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F – PM peak)



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave	Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	D (33.4)	E (39.3)	E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	C (21.4)	C (22.8)	C (23.0)	UC (v/c = 0.74)

Two-Sided Weave
E (39.2)
C (22.8)

Merge
C (27.8)
B (19.1)

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 7.1: I-95 Interchange Alternative B-1 - 2045 Intersection Level of Service Analysis

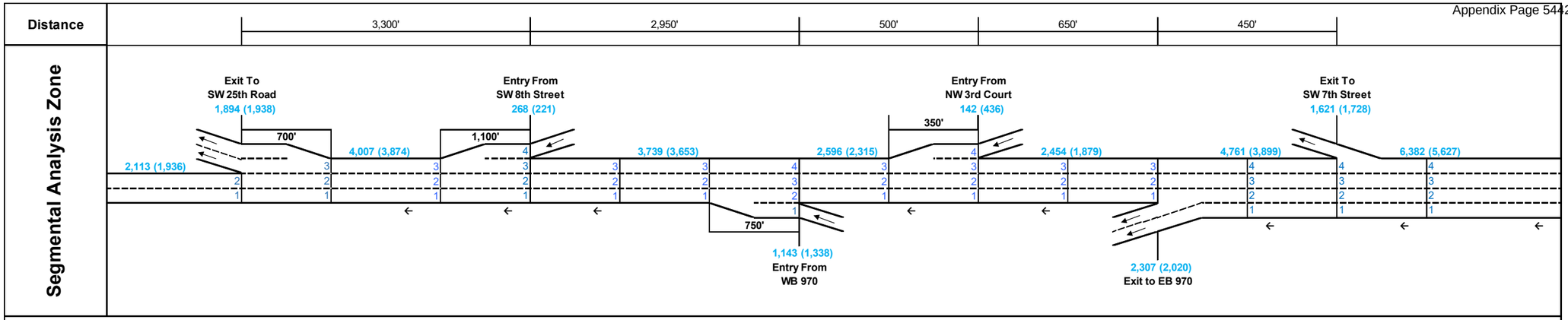
Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 4th Ave	51.4	D	51.6	D
SW 8th Street & SW 3rd Ave*	15.0	B	15.6	B
SW 8th Street & SW 2nd Ave*	108.6	F	54.6	D
SW 7th Street & SW 1st Ave*	18.2	B	33.7	C
SW 7th Street & SW 2nd Ave	30.5	C	102.7	F
SW 7th Street & SW 3rd Ave	31.5	C	41.9	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	35.6	D	94.1	F

*LOS was calculated using the HCM 2000 methodology

I-95 Interchange Alternative B2:

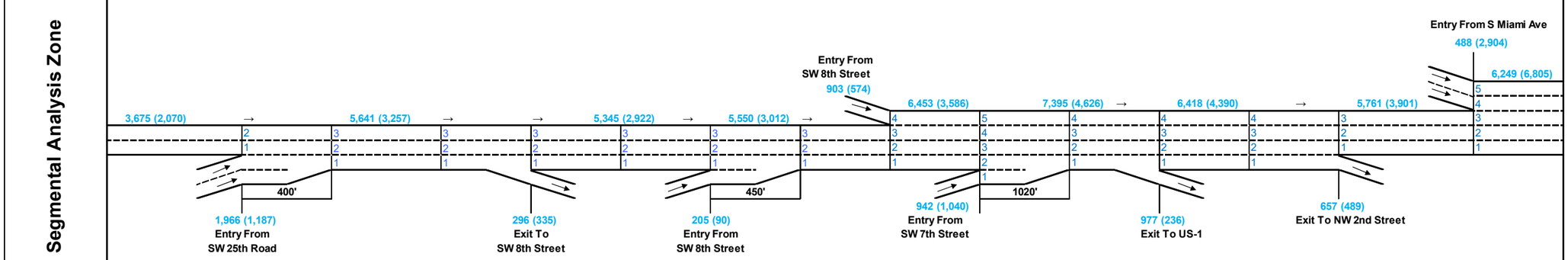
- Freeway Operations: Interchange Alternative B2 matches Interchange Alternative B1 in the configuration and traffic flows along NB and SB I-95. Hence, traffic operations along I-95 under Alternative B2 matches the operations for Alternative B1. Similar to Alternative B1, none of the I-95 freeway segments are expected operate LOS F, however, some segments will operate below the desired LOS D standard. These include:
    - NB I-95, north of on-ramp from SW 25th Road (LOS E – AM peak)
    - NB I-95 at off-ramp to SW 8th Street (LOS E – AM peak)
    - NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS E – AM peak)
    - SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak)

- Intersection Operations: The analyses indicate that Alternative B2 will generate operating conditions below the desired LOS E standard at the following intersections, during the AM and/or PM peak periods:
    - SW 8th Street at SW 2th Avenue (LOS F – AM/PM peak)
    - SW 7th Street at SW 2nd Avenue (LOS F – PM peak)
    - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F – PM peak)



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave	Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	D (30.4)	E (39.3, v/c = 0.999)	E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	B (17.7)	C (22.8, v/c = 0.625)	C (23.0)	UC (v/c = 0.74)

Two-Sided Weave
E (39.2, v/c = 0.969)
C (22.8, v/c = 0.606)

Merge
C (27.8)
B (19.1)

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 7.2: I-95 Interchange Alternative B-2 - 2045 Intersection Level of Service Analysis

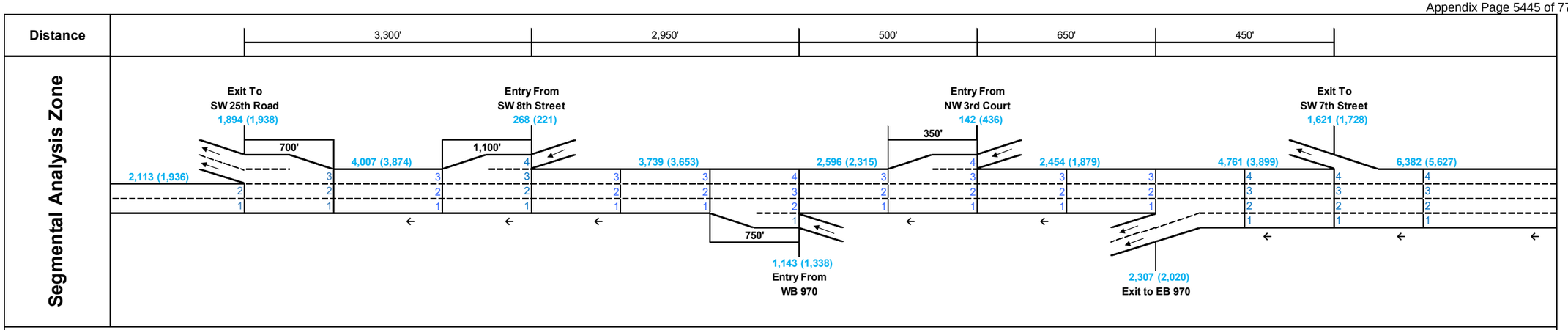
Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 4th Ave	49.3	D	48.2	D
SW 8th Street & SW 3rd Ave*	36.1	D	40.6	D
SW 8th Street & SW 2nd Ave*	153.3	F	78.6	E
SW 7th Street & SW 2nd Ave	28.7	C	101.5	F
SW 7th Street & SW 3rd Ave	31.4	C	41.7	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	55.0	D	161.0	F

*LOS was calculated using the HCM 2000 methodology

I-95 Interchange Alternative B3:

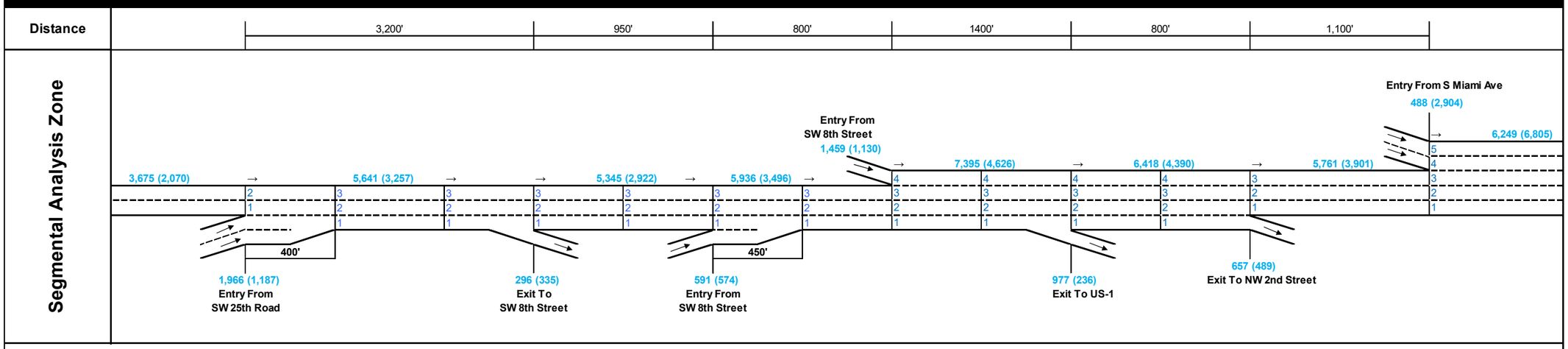
- Freeway Operations: Interchange Alternative B3 matches the No Build Alternative in the configuration and traffic flows along NB and SB I-95. Hence, traffic operations along I-95 under Alternative B3 matches the operations for the No Build. Similar to the No Build Alternative, the following segments along I-95 will experience operating conditions below the desired LOS D standard:
    - NB I-95, north of on-ramp from SW 25th Road (LOSE – AM peak)
    - NB I-95 at off-ramp to SW 8th Street(LOS E – AM peak)
    - NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS F – AM peak).
    - SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak)

- Intersection Operations: The analyses indicate that Alternative B2 will generate operating conditions below the desired LOS E standard at the following intersections, during the AM and/or PM peak periods:
    - SW 8th Street at SW 2th Avenue (LOS F – AM peak)
    - SW 7th Street at SW 2nd Avenue (LOS F – PM peak)
    - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F – PM peak)



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave		Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	D (33.4)	F (v/c = 1.001)		E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	C (21.4)	C (22.9, v/c = 0.625)		C (23.0)	UC (v/c = 0.74)
							Two-Sided Weave			
							E (39.5, v/c = 0.970)			
							C (23.0, v/c = 0.607)			

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 7.3: I-95 Interchange Alternative B-3 - 2045 Intersection Level of Service Analysis

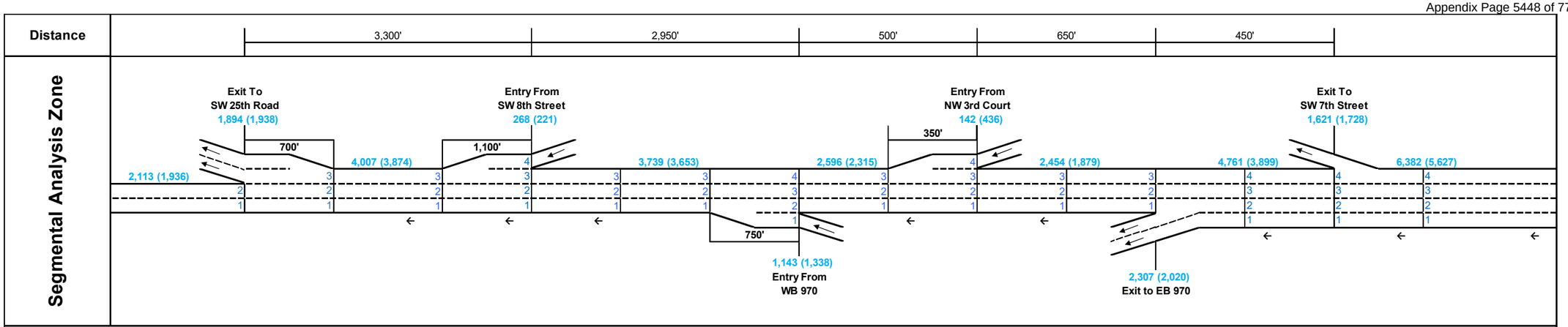
Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 4th Ave	49.5	D	48.5	D
SW 8th Street & SW 3rd Ave	30.7	C	34.2	C
SW 8th Street & SW 2nd Ave*	105.4	F	50.3	D
SW 7th Street & SW 2nd Ave	30.5	C	102.7	F
SW 7th Street & SW 3rd Ave	33.3	C	54.8	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	37.9	D	113.8	F

*LOS was calculated using the HCM 2000 methodology

I-95 Interchange Alternative B4:

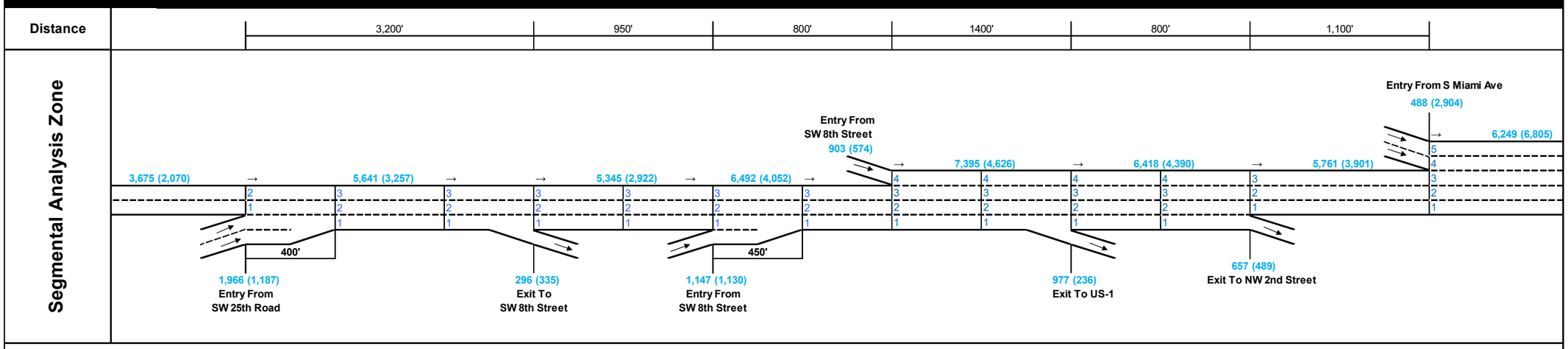
- Freeway Operations: Interchange Alternative B4 matches the No Build Alternative in the configuration and traffic flows along SB I-95. Hence, traffic operations along SB I-95 under Alternative B3 matches the operations for the No Build. In the case of NB I-95, this alternative generates additional traffic on the SW 8th Street on-ramp (right hand). This results is adverse traffic operating conditions at SW 8th Street NB on-ramp, which does not occur in the No Build or other Build Alternatives. The HCS analyses indicate that the following segments of I-95 will experience operating conditions below the desired LOS D standard:
    - NB I-95, north of on-ramp from SW 25th Road (LOSE – AM peak)
    - NB I-95 at off-ramp to SW 8th Street(LOS E – AM peak)
    - NB I-95 on-ramp (right hand ramp) from SW 8th Street - (LOS F in AM peak)
    - NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS F – AM peak).
    - SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak)

- Intersection Operations: The analyses indicate that Alternative B4 will generate operating conditions below the desired LOS E standard at the following intersections, during the AM and/or PM peak periods:
    - SW 8th Street at SW 2th Avenue (LOS F/F – AM/PM peak)
    - SW 7th Street at SW 2nd Avenue (LOS F – PM peak)
    - SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F/F – AM/PM peak)



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave		Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	F (37.8)	F (v/c = 1.001)		E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	C (25.8)	C (22.8, v/c = 0.625)		C (23.0)	UC (v/c = 0.74)
							Two-Sided Weave			
							E (39.5, v/c = 0.970)			
							C (23.0, v/c = 0.607)			

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 7.4: I-95 Interchange Alternative B-4 - 2045 Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 4th Ave	49.3	D	48.2	D
SW 8th Street & SW 3rd Ave*	57.4	E	32.6	C
SW 8th Street & SW 2nd Ave*	198.9	F	149.0	F
SW 7th Street & SW 2nd Ave	60.5	E	167.1	F
SW 7th Street & SW 3rd Ave**	-	-	-	-
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	52.2	D	159.7	F

*LOS was calculated using the HCM 2000 methodology

**Unsignalized intersection

7.3 Evaluation of I-95 Interchange Alternatives

The I-95 interchange alternatives were screened in an evaluation matrix considering several performance criteria including: safety, traffic operations, environmental impacts, social impacts, right of way, and construction cost. Each alternative was assigned a relative ranking based on the collective assessment of various professionals from the project team and input gained from the public outreach conducted during the PD&E process. The No Build Alternative was used as a benchmark for assessing the positive or negative impacts of each alternative. The ranking assigned to each alternative ranged from a low of -3 to a high of +3. A ranking of -3 was applied to indicate that the alternative performs substantially worse than the No Build Alternative for the specified performance measure. A ranking of +3 was applied to indicate that the alternative performs substantially better than the No Build Alternative for the specified performance measure. A Recommended Alternative was determined based on the assigned rankings across all performance criteria. The resulting evaluation matrix is shown in Table 7.5.

Based on the assessment presented in the evaluation matrix, Build Alternative 1 was determined to be the highest ranked design concept for the study location and the Recommended Alternative for moving forward.

Table 7.5: Alternatives Evaluation Matrix

CATEGORY	CRITERIA	NO BUILD	I-95 INTERCHNAGE BUILD ALTERNATIVES				COMMENTS
			B-1	B-2	B-3	B-4	
Safety and Traffic Operations	Fully addresses Project Purpose and Need	0	3	2	2	1	B-1 fully addresses safety and operational concerns
	Addresses all major traffic movements at interchange	0	3	2	2	1	B-1 addresses all major movements
	Satisfies the LOS Criteria through the Design Year	0	3	2	1	1	B-3 and B-4 impact I-95 operations
	Improves Roadway / Interchange Operation / Safety	0	3	2	1	1	B-3 and B-4 impact I-95 operations
Environmental and Social	Social and Economic Environment (religious centers, schools, social services, group care facilities)	0	0	0	0	0	Build Alternatives have no anticipated social impacts
	Cultural Environment (Section 4f, historic , archeological, recreational sites)	0	0	0	0	0	Build Alternatives have no anticipated cultural impacts
	Natural Environment (wetlands, protected species and habitat)	0	-1	-1	0	0	WB to NB Flyover in B-1 and B-2 may impact Miami River
	Physical Environment (parking, pedestrians, air/water quality, contamination, utility)	0	-1	-1	-1	0	B-1, B-2 and B-3 impact parking
Project Cost	Construction (Cost)	0	-2	-1	-1	0	B-1 most costly with 2 flyovers
	Right-of-way Cost	0	-2	-2	-1	0	B-1 and B-2 impact Publix Supermarket on SW 7th Street
Total All Categories		**0**	**6**	**3**	**3**	**4**	B-1 highest ranked alternative

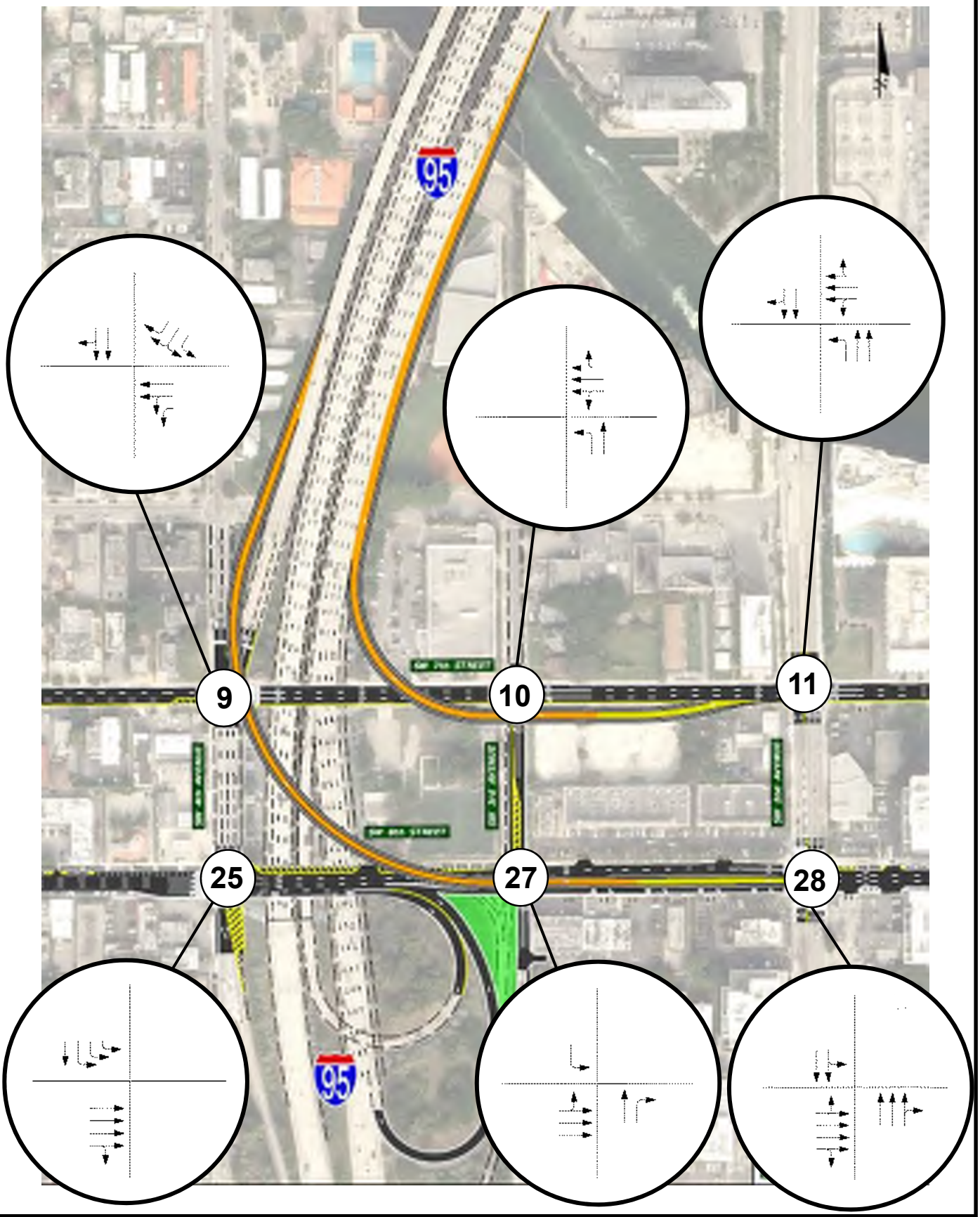
Notes: Relative ranking of design alternative ranges from -3 (worst of all alternatives) to + 3 (best of all alternatives).

8.0 RECOMMENDED ALTERNATIVE

8.1 Recommended Alternative - Road Network

Based on the analyses presented in the preceding sections of the report, Interchange Alternative B-1 was determined to be the Recommended Alternative for the study. The Recommended Alternative incorporates modifications to the I-95 at SR 90/SW 8th Street/SW 7th Street interchange, as well as modifications to adjacent intersections to optimize safety and traffic operations at the interchange. The interchange modifications are also consistent with the recommended future configuration for SW 8th Street and SW 7th Street, as determined from the analyses and public outreach performed during the PD&E Study. The Recommended Alternative is illustrated in Figure 8.1 (I-95 Interchange Alternative B-1) under Section 7 of the report. It incorporates the following:

- SW 8th Street is maintained three lanes one-way eastbound per existing condition.
- SW 7th Street is maintained three lanes one-way westbound per existing condition.
- Propose new flyover ramp for accommodating movements from SB I-95 to eastbound SW 8th Street. The proposed SB to EB flyover elevates above SW 7th Street/SW 4th Avenue Intersection and SW 8th Street/SW 3rd Avenue Intersection. The new flyover will connect to the existing I-95 SB off-ramp to SW 7th Street –and does not introduce a new connection to I-95.
- Proposed new flyover ramp for accommodating movements from westbound SW 7th Street to NB I-95. The proposed WB to NB ramp elevates above SW 7th Street/SW 3rd Avenue Intersection and it introduces a new connection (on-ramp) to NB I-95.
- The two existing loop ramps for movements from eastbound SW 8th Street to NB I-95 are modified to prevent direct access to these ramps from SW 3rd Avenue.
- The intersection at SW 8th Street and SW 3rd Avenue is modified to prohibit southbound through (SBT) movements.
- Traffic flows and intersection configurations are not impacted (match existing) for all segments of SR 90/SW 8th Street/SW 7th Street located east of SW 2nd Avenue and west of SW 4th Avenue.



FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	Recommended Alternative (B – 1) Design Concept	Figure 8.1

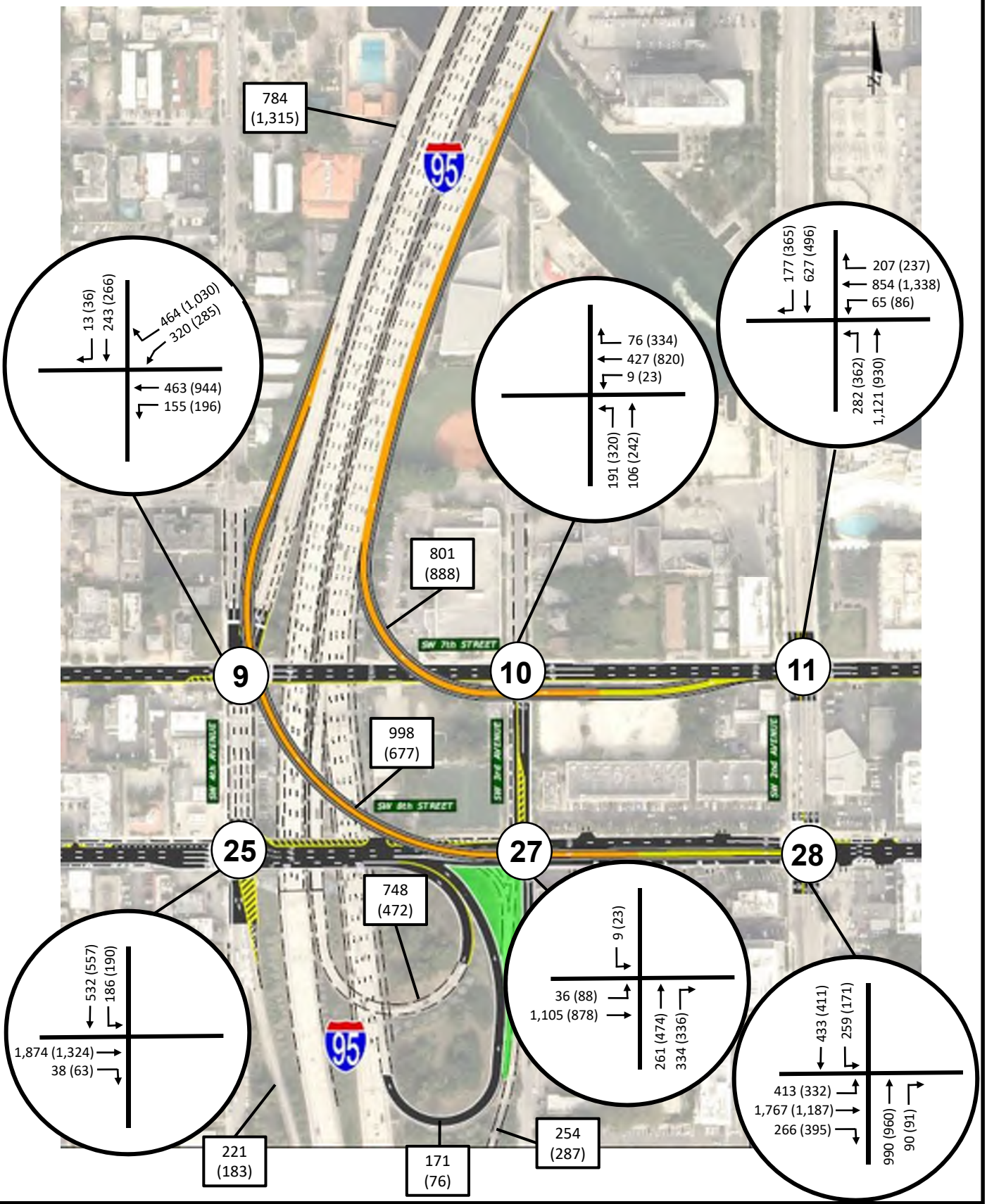
8.2 Recommended Alternative – Opening Year (2025) LOS Analysis

Level of service analysis were conducted to evaluate the performance of the Recommended Alternative in the anticipated opening year 2025. The analyses were performed consistent with the methodology presented under Section 2 of the IMR. Highway Capacity Manual (HCM), Sixth Edition procedures were used for I-95 freeway segments analyses and Synchro 10 used for intersection analyses. Year 2025 peak hour volumes were estimated by reassigning the 2025 No Build Alternative traffic volumes to be consistent with the proposed I-95 Interchange modifications. Figure 8.2 shows the Recommended Alternative network along with the estimated 2025 peak hour volumes used for the analyses. As noted under section 8.1, for study intersections located west of I-95 and east of SW 2nd Avenue, the traffic flows and intersection geometries are consistent with the 2025 No Build Alternative (presented under Section 5 of the IMR). Results of the 2025 LOS analyses for the Recommended Alternative I-95 freeway segments are summarized in Figure 8.3 and level of service for the intersections are summarized in Table 8.1. Detailed output sheets for the 2025 LOS analysis are contained under Appendix F (Build 4-1). Results of the 2025 level of service analyses are discussed below.

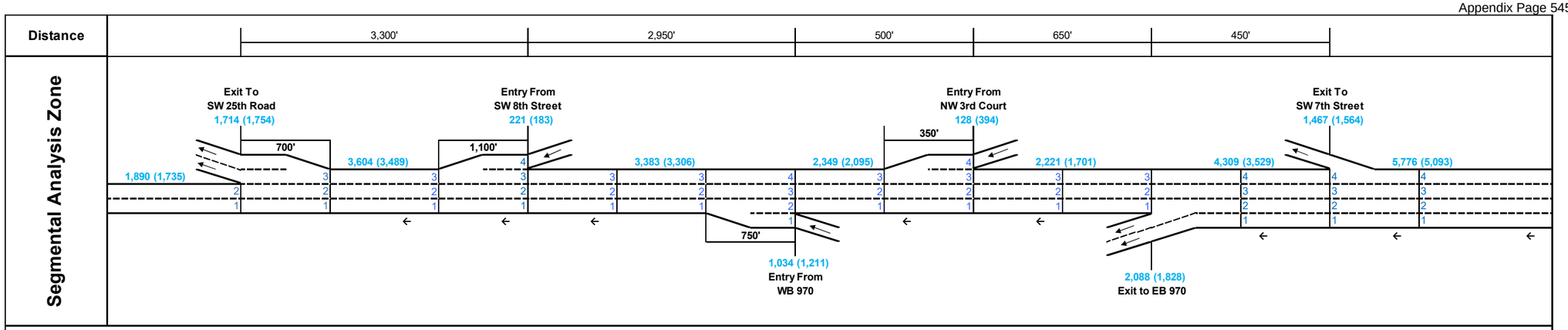
I-95 Traffic Operations: The results of the freeway analyses indicate that all segments of I-95 will operate at LOS D or better during the opening year (2025), AM and PM peak periods. These results are comparable to the 2025 No Build Alternative, 2025 traffic operations (reference Figure 5.6 in the IMR).

SW 8th Street and SW 7th Street Traffic Operations: As depicted in Table 8.1, all intersections within the area of influence are expected to operate within the desired LOS E standard or better during the opening year, AM and PM peak periods. This is an improvement over the No Build Alternative in which two intersections experienced failing conditions – SW 8th Street at 2nd Avenue and SW 7th Street at 4th Avenue (refer to Table 5.1 in the IMR).

The results of the LOS analysis indicate that the Recommended Alternative will provide overall better traffic operations when compared to the No Build Alternative, during opening year (2025).

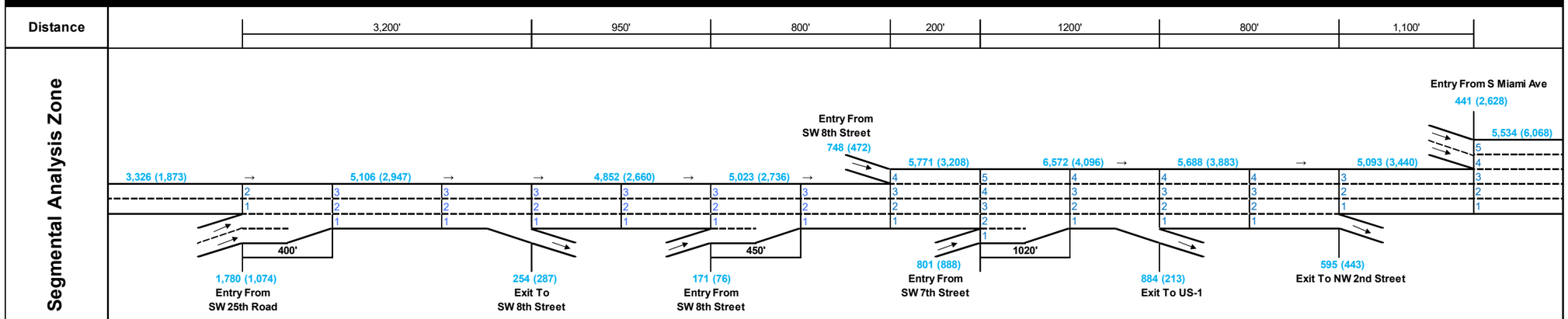


FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	Recommended Alternative (B-1) 2025 Peak Hour Volumes	Figure 8.2



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	B (16.8)	UC (v/c = 0.44)	C (21.3)	B (19.8)	C (20.0)	C (21.9)	B (15.1)	B (13.1)	UC (v/c = 0.53)	C (19.1)	D (34.8)	C (25.6)
PM LOS (Density)	B (15.4)	UC (v/c = 0.45)	C (20.6)	B (19.1)	C (19.5)	C (21.9)	B (14.6)	A (10.1)	UC (v/c = 0.47)	B (15.6)	D (32.6)	C (22.6)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave	Basic	Major Merge
AM LOS (Density)	D (29.7)	UC (v/c = 0.45)	D (30.6)	D (33.7)	D (28.8)	C (27.7)	D (34.2, v/c = 0.888)	D (30.5)	UC (v/c = 0.11)
PM LOS (Density)	B (16.6)	UC (v/c = 0.27)	B (17.4)	C (23.1)	B (15.7)	B (16.3)	B (19.9, v/c = 0.553)	C (20.3)	UC (v/c = 0.67)

Two-Sided Weave
D (34.1, v/c = 0.861)
B (20.0, v/c = 0.537)

Merge
C (24.5)
B (16.6)

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 8.1: Recommended Alternative - 2025 Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 8th Ave*	27.6	C	25.7	C
SW 8th Street & SW 5th Ave	36.7	D	33.3	C
SW 8th Street & SW 4th Ave	46.1	D	47.6	D
SW 8th Street & SW 3rd Ave*	12.7	B	14.5	B
SW 8th Street & SW 2nd Ave*	53.8	D	39.9	D
SW 8th Street & SW 1st Ave	53.6	D	51.1	D
SW 8th Street & S Miami Ave	40.7	D	38.5	D
SW 7th Street & S Miami Ave*	16.0	B	24.1	C
SW 7th Street & SW 1st Ave*	16.3	B	30.2	C
SW 7th Street & SW 2nd Ave	34.6	C	64.0	**E**
SW 7th Street & SW 3rd Ave	30.5	C	38.7	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	35.2	D	53.6	D
SW 7th Street & SW 8th Ave	20.5	C	28.8	C

*LOS was calculated using the HCM 2000 methodology

8.3 Recommended Alternative – Design Year (2045) LOS Analysis

Level of service analyses were conducted to evaluate the performance of the Recommended Alternative in the anticipated design year 2045. The analyses were performed consistent with the methodology presented under Section 2 of the IMR. Highway Capacity Manual (HCM), Sixth Edition procedures were used for I-95 freeway segments analyses and Synchro 10 used for intersection analyses. Year 2045 peak hour volumes were estimated by reassigning the 2045 No Build Alternative traffic volumes to be consistent with the proposed I-95 Interchange modifications. Figure 8.4 shows the Recommended Alternative network along with the estimated 2045 peak hour volumes used for the analyses. As noted under section 8.1, for study intersections located west of I-95 and east of SW 2nd Avenue, the traffic flows and intersection geometries are consistent with the 2045 No Build Alternative (presented under Section 5 of the IMR). Results of the 2045 LOS analyses for the Recommended Alternative I-95 freeway segments are summarized in Figure 8.5 and level of service for the intersections are summarized in Table 8.2. Detailed output sheets for the 2045 LOS analysis are included under Appendix F. Results of the analyses are discussed below.

I-95 Traffic Operations: The results of the freeway analyses indicate that all segments of I-95 will operate at LOS E or better during the design year (2025), AM and PM peak periods. These results are an improvement over the No Build Alternative in which LOS F conditions are generated along NB I-95 within the weaving segment between SW 8th Street on-ramp (left hand entry) and US 1 of-ramp (right hand exit) – see Figure 5.7 in the IMR. The following segments of the Recommend Alternative will operate below the desired LOS D standard:

- NB I-95, north of on-ramp from SW 25th Road (LOSE – AM peak). This matches operations in the No Build Alternative.
- NB I-95 at off-ramp to SW 8th Street (LOS E – AM peak). This matches operations in the No Build Alternative.
- NB I-95 north of on-ramp from SW 8th Street – weaving segment (LOS E – AM peak). This weaving segment performs better than the No Build as the new on-ramp from SW 7th Street generates a

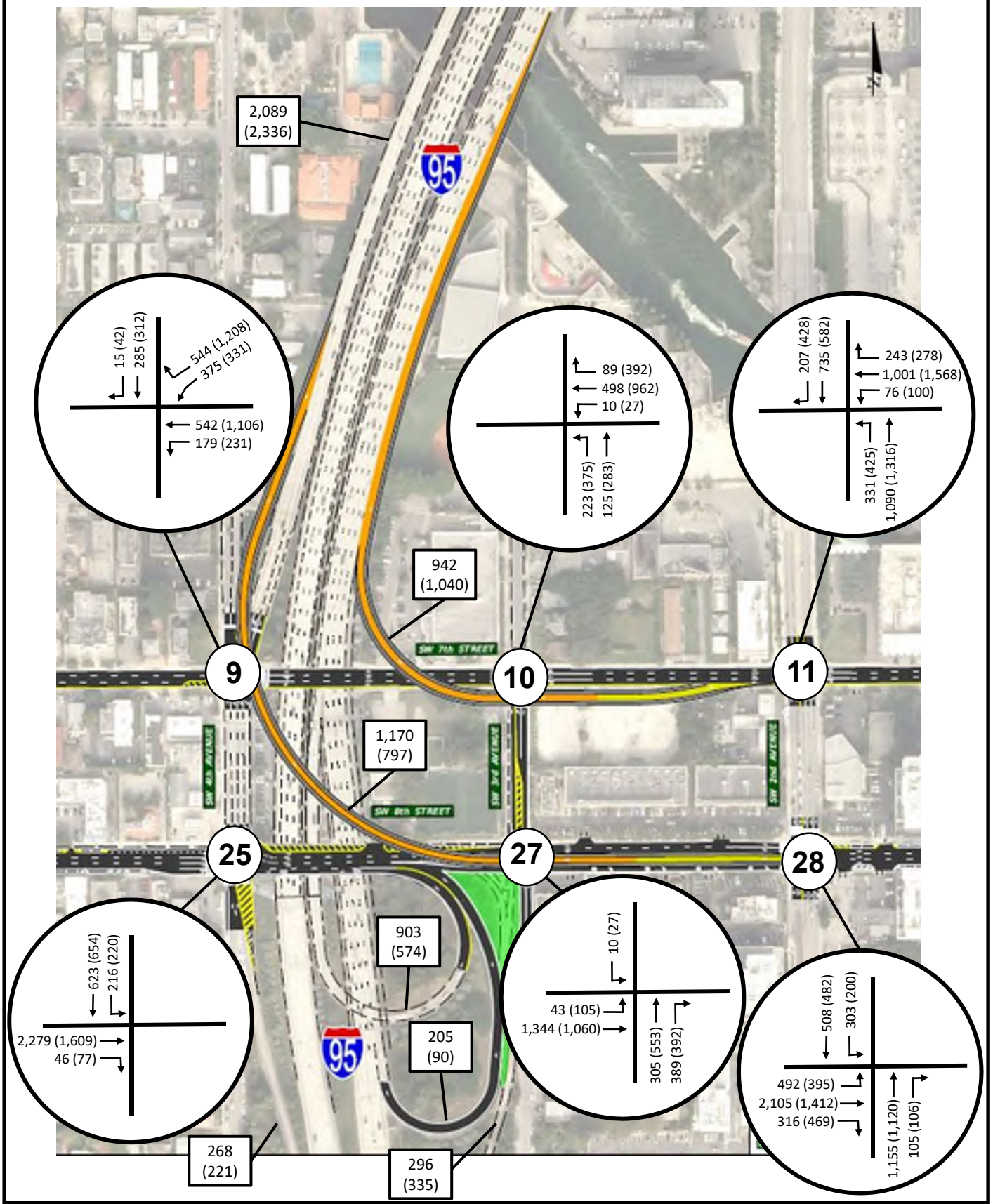
decrease in the two-sided weave movements (from SW 8th Street on-ramp to US 1 off-ramp and from SW 8th Street on-ramp to NW 2nd Street off-ramp).

- SB I-95 at off-ramp to SW 7th Street (LOS E/E – AM/PM peak). This matches operations in the No Build Alternative

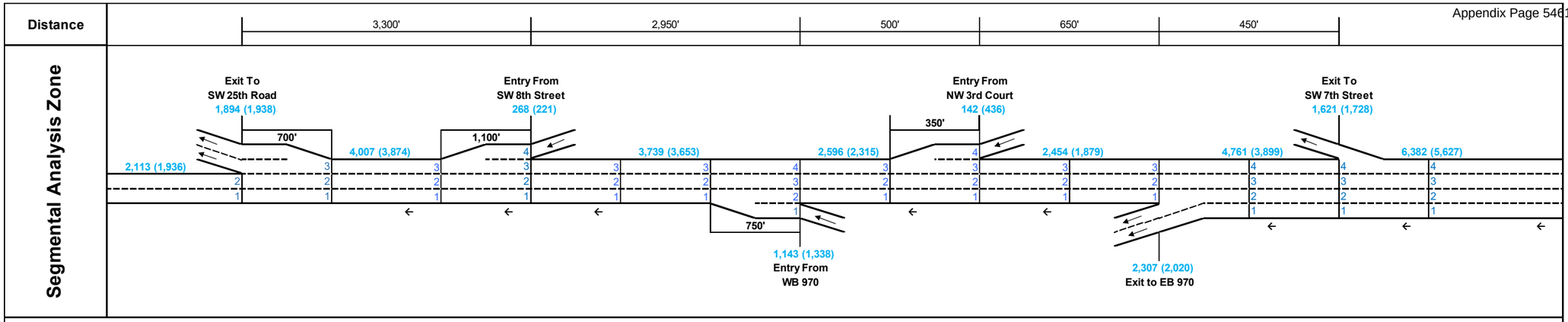
SW 8th Street and SW 7th Street Traffic Operations: As depicted in Table 8.2, The Recommended Alternative will generate operating conditions below the desired LOS E standard at the following intersections during the design year (2045), AM and PM peak periods:

- SW 8th Street at SW 2th Avenue (LOS F – AM peak). This result is an improvement over the No Build Alternative which generates LOS F conditions in the AM and PM peak periods with higher delays (see Table 5.2 in the IMR).
- SW 7th Street at SW 2nd Avenue (LOS F – PM peak). This result is comparable to the No Build Alternative which has similar geometry and traffic flows at this intersection.
- SW 7th Street at SW 4th Avenue/I-95 SB Off-Ramp (LOS F – PM peak). This result is an improvement over the No Build Alternative which generates LOS F conditions in the AM and PM peak periods with higher delays (see Table 5.2 in the IMR).

The results of the LOS analysis indicate that the Recommended Alternative will provide overall better traffic operations when compared to the No Build Alternative, during the design year (2025).

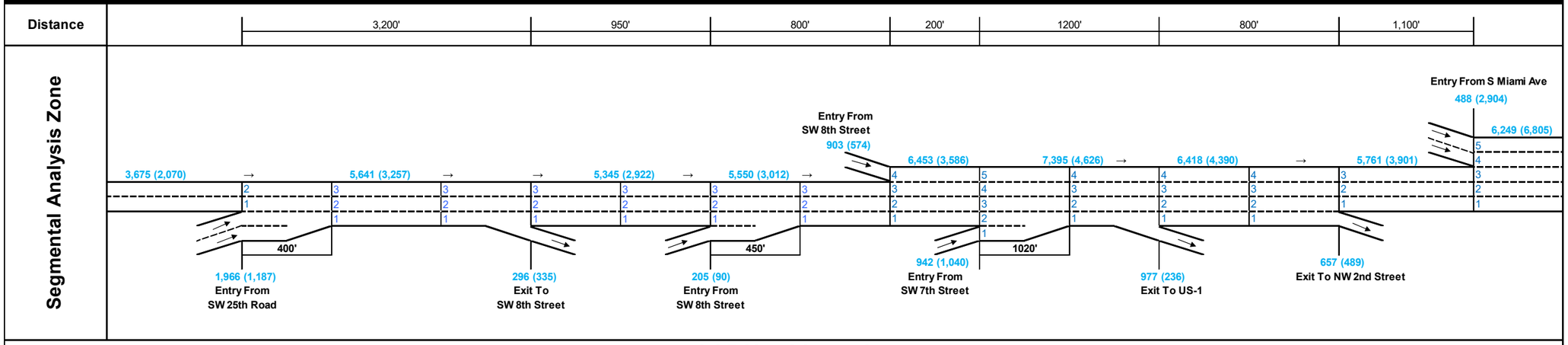


FDOT SR 90/SW 8th Street and SW 7th Street PD&E Study	Recommended Alternative (B-1) 2045 Peak Hour Volumes	Figure 8.4



← I-95 Southbound ←

GU Lane	Basic	Major Diverge	Basic	Merge	Basic	Merge	Merge	Basic	Major Diverge	Basic	Diverge	Basic
AM LOS (Density)	C (18.7)	UC (v/c = 0.48)	C (23.7)	C (22.7)	C (22.1)	C (24.1)	B (16.3)	B (14.5)	UC (v/c = 0.59)	C (21.1)	E (38.0)	D (28.3)
PM LOS (Density)	B (17.1)	UC (v/c = 0.49)	C (22.9)	C (21.9)	C (21.6)	C (24.1)	B (15.8)	B (11.1)	UC (v/c = 0.51)	B (17.3)	E (35.6)	C (24.9)



→ I-95 Northbound →

GU Lane	Basic	Major Merge	Basic	Diverge	Basic	Merge	Two-Sided Weave	Basic	Major Merge
AM LOS (Density)	D (33.9)	UC (v/c = 0.50)	E (35.0)	E (36.1)	D (32.4)	D (33.4)	E (39.3)	E (36.2)	UC (v/c = 0.12)
PM LOS (Density)	C (18.3)	UC (v/c = 0.30)	C (19.2)	C (24.9)	B (17.3)	C (21.4)	C (22.8)	C (23.0)	UC (v/c = 0.74)

Two-Sided Weave
E (39.2)
C (22.8)

Merge
C (27.8)
B (19.1)

LEGEND
X,XXX (X,XXX) = AM (PM) Peak Hour Volume VPH

Table 8.2: Recommended Alternative - 2045 Intersection Level of Service Analysis

Intersection	AM		PM	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SW 8th Street & SW 8th Ave*	44.4	D	29.8	C
SW 8th Street & SW 5th Ave	53.0	D	40.3	D
SW 8th Street & SW 4th Ave	51.4	D	51.6	D
SW 8th Street & SW 3rd Ave*	15.0	B	15.6	B
SW 8th Street & SW 2nd Ave*	108.6	F	54.6	D
SW 8th Street & SW 1st Ave	74.0	E	55.8	E
SW 8th Street & S Miami Ave	44.4	D	41.4	D
SW 7th Street & S Miami Ave*	18.0	B	27.1	C
SW 7th Street & SW 1st Ave*	18.2	B	33.7	C
SW 7th Street & SW 2nd Ave	30.5	C	102.7	F
SW 7th Street & SW 3rd Ave	31.5	C	41.9	D
SW 7th Street & SW 4th Ave/I-95 SB Off-Ramp*	35.6	D	94.1	F
SW 7th Street & SW 8th Ave	22.8	C	42.2	D

*LOS was calculated using the HCM 2000 methodology

9.0 TRAFFIC MICROSIMULATION ANALYSIS

The level of service analyses presented in the preceding sections of the IMR provide an assessment of the anticipated traffic operating conditions along I-95 freeway segments and the arterial intersections based on the Highway Capacity Manual (HCM) analytical procedures. It is recognized that the HCM procedures cannot fully address the complex weaving segments present along the I-95 mainline nor the excessive oversaturated conditions along sections of SW 8th Street and SW 7th Street. These conditions are best evaluated using traffic microsimulation techniques. Hence, microsimulation models were developed to provide a more robust assessment and comparison of the anticipated operating conditions in the design year (2045) for the No Build Alternative and Recommended Alternative. Consistent with the study methodology VISSIM models were used for microsimulation analyses. The following sections describe the development of the microsimulation models and results from the analyses.

9.1 Existing (2015) Conditions VISSIM Model

Traffic microsimulation process begins with the development and calibration of the existing year traffic conditions model. VISSIM microsimulation models were developed and calibrated to replicate existing year (2015) traffic conditions, during typical weekdays, AM and PM peak periods. Temporal limits for the models covered 4 hours during the AM peak period and 4 hours during the PM peak period. The simulation period also included an initial 30-minute seed time to load traffic onto the network. Input volumes were assessed in 15-minute increments based on existing traffic flow profiles.

Calibration of the existing year models were based on measured traffic volumes, link speeds and field observations of traffic operating conditions during peak periods. The I-95 VISSIM model was calibrated in accordance with the guidelines presented in the ***FHWA Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software.*** The calibration criteria specified in the FHWA's guidelines are summarized in Table 9.1

Table 9.1: Freeway Model Calibration Criteria

Criteria and Measures	Calibration Acceptance Targets
Hourly Flows, Model Versus Observed	
Individual Link Flows	
Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases
Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases
Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases
Sum of All Link Flows	Within 5% of sum of all link counts
GEH Statistic < 5 for Individual Link Flows	> 85% of cases
GEH Statistic for Sum of All Link Flows	GEH < 5 for sum of all link counts
Travel Times, Model Versus Observed	
Journey Times, Network	
Within 15% (or 1 min, if higher)	> 85% of cases
Visual Audits	
Individual Link Speeds	
Visually Acceptable Speed-Flow Relationship	To analyst's satisfaction
Bottlenecks	
Visually Acceptable Queuing	To analyst's satisfaction

Appendix B contains the ***VISSIM Existing Conditions Model Development and Calibration Report***. The VISSIM Calibration Report details the development of the existing conditions model and input parameters that were adjusted as part of calibration process. These included incremental making incremental adjustments to model parameters that influence "car following" and lane changing behavior. Statistical comparisons were made of the model output parameters and the applied calibration criteria. The information documented in the VISSIM Calibration Report demonstrates that that the existing conditions models accurately replicate 2015 traffic conditions along I-95, SW 8th Street and SW 7th Street, within the tolerances specified in the FHWA's guidelines. In satisfying these calibration criteria, it is concluded that the Existing Conditions models were successfully calibrated and are suitable for analysis of future build alternatives - with appropriate adjustments for changes in design concepts and traffic flow conditions.

9.2 2045 No Build Alternative – Microsimulation Analysis

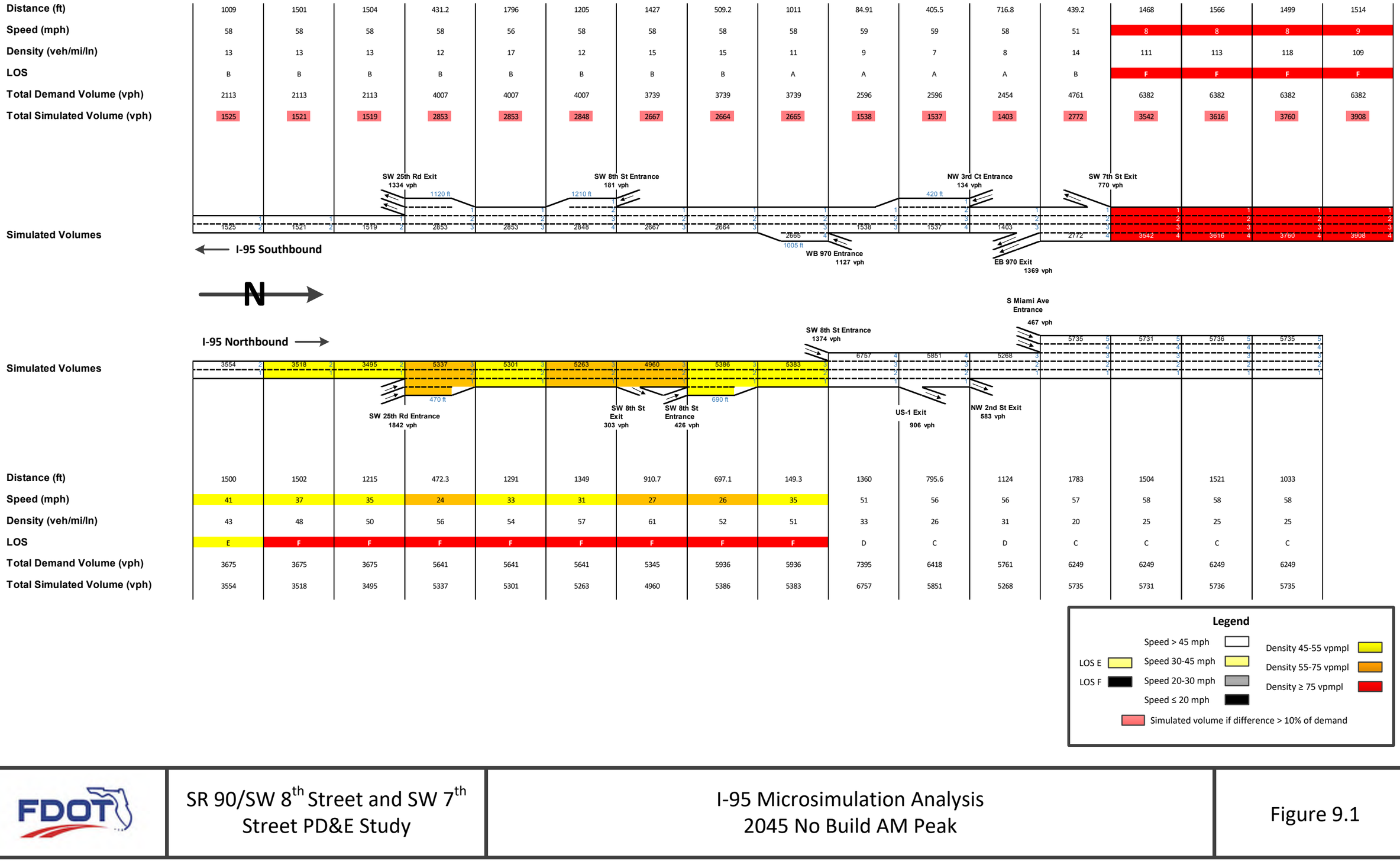
VISSIM microsimulation models were developed for the No Build Alternative to assess the anticipated traffic operating conditions in the design year (2045). The design year No Build models were developed using parameters consistent with the calibrated Existing (2015) Conditions Model. Traffic volumes were applied in 15-minute increments covering 4-hours in AM peak period and 4-hours in the PM peak period during the design year. Measures of effectiveness (MOEs) were extracted from the models for the AM and PM peak hours (hour 2 of the analysis period) and these MOEs were used for assessing traffic operating conditions. Outputs from the VISSIM models are included under Appendix G. The results of this analysis are discussed below.

I-95 AM Peak Operations: Figure 9.1 depicts the anticipated I-95 operating conditions for the No-Build Alternative in the AM peak hour, year 2045. The results indicate that during the AM peak hour, traffic congestion will be experienced in both the northbound and southbound directions on I-95, under the No Build Alternative. In the northbound direction, along the mainline segment just south of the SW 8th Street on-ramp (left hand ramp), the peak traffic demand volume (5,936 vph) is marginally below the capacity of the existing 3-lane segment. This condition results in a sharp drop speeds along the segments and this propagates to upstream locations resulting in low operating speeds (approximately 25 mph to 40 mph) over an extended segment of the freeway (from south of SW 25th Street on-ramp to SW 8th Street on-ramp.). The reported densities along this segment translate approximately to LOS F.

In the southbound direction, severe congestion is experienced along the segment of I-95 north on the SW 7th Street off-ramp. Operating speeds within this segment are below 10 mph with LOS F conditions. Visual inspection of the simulation models indicate that this mainline congestion results from queueing at the SB terminal intersection at SW 7th Street.

I-95 PM Peak Operations: **Figure 9.2** depicts the anticipated I-95 operating conditions for the No-Build Alternative in the PM peak hour, year 2045. During the PM peak hour, significant traffic congestion is experienced along SB I-95 north of the SW 7th Street off-ramp (similar to AM peak operations). Operating speeds within this segment are below 20 mph with LOS F conditions. Visual inspection of the simulation models indicate that this mainline congestion results from queueing at the SB terminal intersection at SW

7th Street. NB I-95 experiences no noticeable congestion during the PM peak period. Operating speeds are above 50 mph for all NB I-95 segments with densities approximating to LOS D or better.

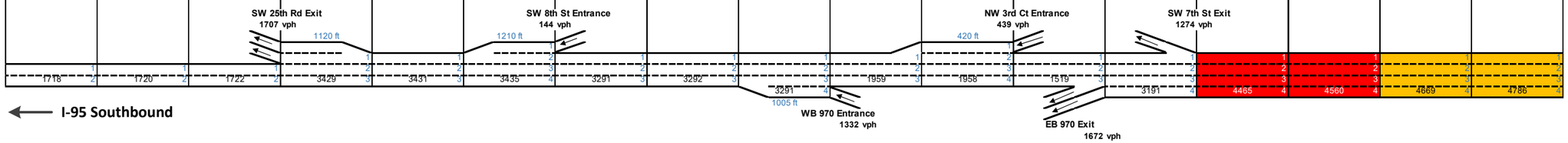


FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Microsimulation Analysis 2045 No Build AM Peak

Figure 9.1

Distance (ft)	1009	1501	1504	431.2	1796	1205	1427	509.2	1011	84.91	405.5	716.8	439.2	1468	1566	1499	1514
Speed (mph)	58	58	58	57	54	57	58	58	58	59	59	58	53	14	14	16	18
Density (veh/mi/ln)	15	15	15	15	21	15	19	19	14	11	8	9	15	80	81	73	66
LOS	B	B	B	B	C	B	C	C	B	A	A	A	B	F	F	F	F
Total Demand Volume (vph)	1936	1936	1936	3874	3874	3874	3653	3653	3653	2315	2315	1879	3899	5627	5627	5627	5627
Total Simulated Volume (vph)	1718	1720	1722	3429	3431	3435	3291	3292	3291	1959	1958	1519	3191	4465	4560	4669	4786

Simulated Volumes

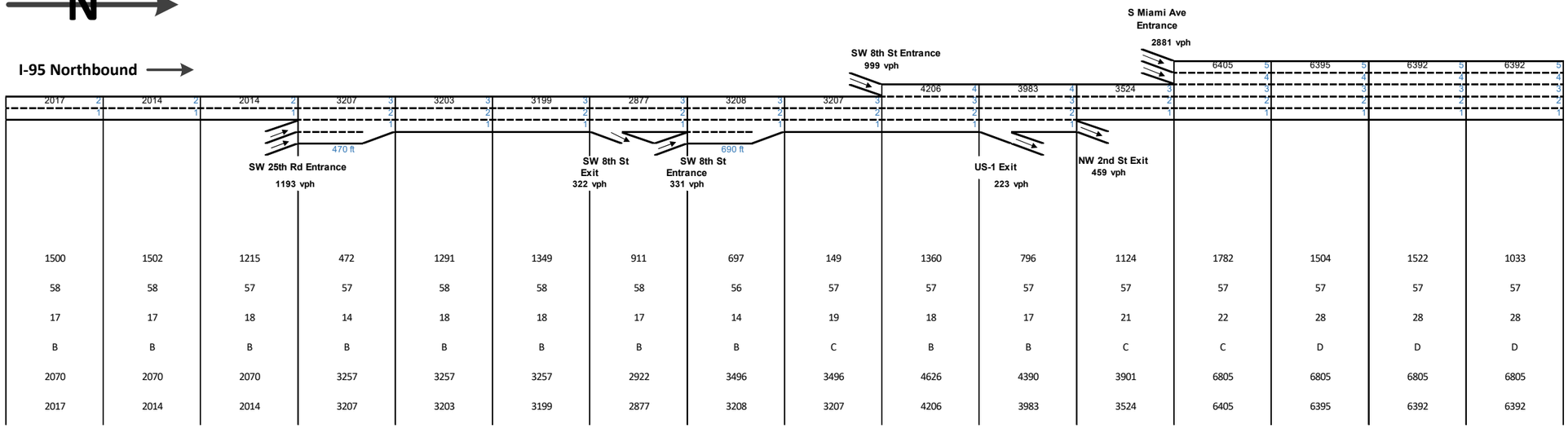


I-95 Southbound

N

I-95 Northbound

Simulated Volumes



Distance (ft)	1500	1502	1215	472	1291	1349	911	697	149	1360	796	1124	1782	1504	1522	1033
Speed (mph)	58	58	57	57	58	58	58	56	57	57	57	57	57	57	57	57
Density (veh/mi/ln)	17	17	18	14	18	18	17	14	19	18	17	21	22	28	28	28
LOS	B	B	B	B	B	B	B	B	C	B	B	C	C	D	D	D
Total Demand Volume (vph)	2070	2070	2070	3257	3257	3257	2922	3496	3496	4626	4390	3901	6805	6805	6805	6805
Total Simulated Volume (vph)	2017	2014	2014	3207	3203	3199	2877	3208	3207	4206	3983	3524	6405	6395	6392	6392

Legend

	Speed > 45 mph		Density 45-55 vpmpl
LOS E	Speed 30-45 mph		Density 55-75 vpmpl
LOS F	Speed 20-30 mph		Density ≥ 75 vpmpl
	Speed ≤ 20 mph		

Simulated volume if difference > 10% of demand

FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Microsimulation Analysis 2045 No Build PM Peak

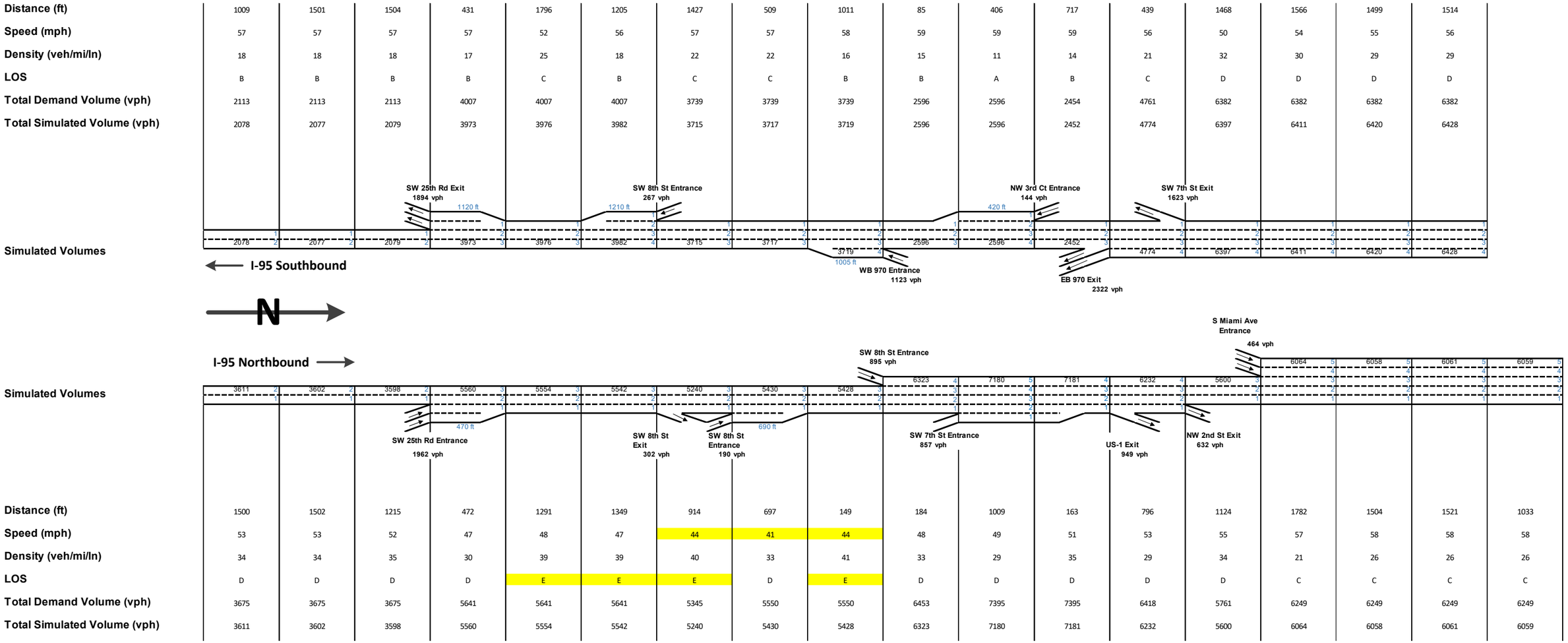
Figure 9.2

9.3 2045 Recommended Alternative – Microsimulation Analysis

VISSIM microsimulation models were developed for the Recommended Alternative to assess the anticipated traffic operating conditions in the design year (2045). The design year Recommended Alternative models were developed using parameters consistent with the calibrated Existing (2015) Conditions Model. Traffic volumes were applied in 15-minute increments covering 4-hours in AM peak period and 4-hours in the PM peak period during the design year. Measures of effectiveness (MOEs) were extracted from the models for the AM and PM peak hours (hour 2 of the analysis period) and these MOEs were used for assessing traffic operating conditions. Outputs from the VISSIM models are included under Appendix G. The results of this analysis are discussed below.

I-95 AM Peak Hour: Figure 9-3 depicts the anticipated I-95 operating conditions for the Recommended Alternative in the PM peak hour, year 2045. These results indicate a significant improvement when compared to the No Build Alternative. In the northbound direction, operating speeds are above 40 mph with densities at LOS E or better. The improved operations in the NB direction results from addition of the proposed new NB on-ramp from SW 7th Street which reduces traffic demand to approximately 5,550 vph in the critical 3-lane segment located just south of SW 8th Street on-ramp. In the southbound direction, operating speeds are 50 mph or higher with densities approximating to LOS D or better. The improved operating conditions in the SB direction result from the proposed new SB off-ramp which reduces traffic at the existing SW 7th Street off-Ramp. This reduces queuing on the off-ramp and alleviating impacts to the mainline traffic flow.

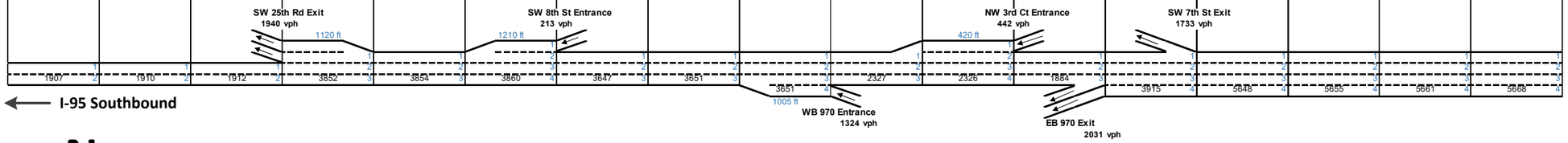
I-95 PM Peak Hour: Figure 9.4 depicts the anticipated I-95 operating conditions for the Recommended Alternative in the PM peak hour, year 2045. Similar to the AM peak hour, the results show significant improvements in traffic operations when compared to the No-Build Alternative. The improvements are particularly dramatic in the southbound direction where operating speeds along all I-95 segments are above 50 mph with densities approximately at LOS C or better. In the northbound direction, in the southbound direction, operating speeds along all I-95 segments are above 55 mph with densities approximately at LOS CD are better. The improvements in operations during the PM peak period result from similar circumstances as described above for the AM peak period.



FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Microsimulation Analysis 2045 Recommended Alternative (B-1) AM Peak

Figure 9.3

Distance (ft)	1009	1501	1504	431	1796	1205	1427	509	1011	85	406	717	439	1468	1566	1499	1514	
Speed (mph)	57	57	58	57	52	57	57	57	58	59	59	59	57	51	56	56	57	
Density (veh/mi/ln)	17	17	16	17	25	17	21	21	16	13	10	11	17	28	25	25	25	
LOS	B	B	B	B	C	B	C	C	B	B	A	A	B	D	C	C	C	
Total Demand Volume (vph)	1936	1936	1936	3874	3874	3874	3653	3653	3653	2315	2315	1879	3899	5627	5627	5627	5627	
Total Simulated Volume (vph)	1907	1910	1912	3852	3854	3860	3647	3651	3651	2327	2326	1884	3915	5648	5655	5661	5668	



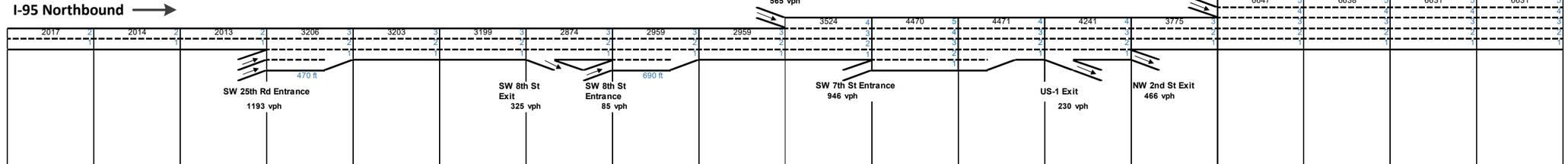
Simulated Volumes

← **I-95 Southbound**

N

I-95 Northbound →

Simulated Volumes



Distance (ft)	1500	1502	1215	472	1291	1349	911	697	149	184	1009	163	796	1124	1782	1504	1521	1033
Speed (mph)	58	58	57	57	58	58	58	57	58	57	56	57	57	57	57	57	57	57
Density (veh/mi/ln)	17	17	18	14	18	18	17	13	17	15	16	20	19	22	23	29	29	29
LOS	B	B	B	B	B	B	B	B	B	B	B	C	C	C	C	D	D	D
Total Demand Volume (vph)	2070	2070	2070	3257	3257	3257	2922	3012	3012	3586	4626	4626	4390	3901	6805	6805	6805	6805
Total Simulated Volume (vph)	2017	2014	2013	3206	3203	3199	2874	2959	2959	3524	4470	4471	4241	3775	6647	6638	6631	6631

Legend

	Speed > 45 mph	Density 45-55 vpmpl
LOS E	Speed 30-45 mph	Density 55-75 vpmpl
LOS F	Speed 20-30 mph	Density ≥ 75 vpmpl
	Speed ≤ 20 mph	

Simulated volume if difference > 10% of demand

FDOT	SR 90/SW 8th Street and SW 7th Street PD&E Study	I-95 Microsimulation Analysis 2045 Recommended Alternative (B-1) PM Peak
		Figure 9.4

9.4 Comparison of No Build and Recommended Alternative

Various MOEs generated form the 2045 VISSIM microsimulation models were extracted to compare the anticipated future traffic operating for the No Build Alternative and Recommended Alternative. The comparison included:

- Travel times and operating speeds along I-95 mainline
- Throughput (simulated volume) along I-95 mainline
- Travel times along SW 8th Street and SW 7th Street
- Queue lengths at the I-95 Off-Ramp Terminal Intersection
- Network-wide performance measures (average speed, total delay, latent demand, total travel time and total stops)

Tables 9.2 through 9.6 provide a summary of the above MOEs for the No Build Alternative and the Recommended Alternative for the AM and PM peak periods, in the design year 2045. The results demonstrates that the Recommended Alternative consistently out performs the No Build Alternative. This conclusion is supported by the findings discussed below.

I-95 Travel Times: Table 9.2 summarizes the travel times along I-95 mainline during the AM and PM peak periods for the two alternatives. As depicted in the table, travel times and corresponding operating speeds are substantially improved with the Recommended Alternative, particularly in the southbound direction. The Recommended Alternative improves travel times/operating speeds along SB I-95 by approximately 46% during the AM peak and 30% in the PM peak. Correspondingly, along NB I-95 operating speeds improve by approximately 23% in the AM peak and match No Build during the PM peak.

I-95 Throughout Traffic: Table 9.3 summarizes the simulated throughput traffic along I-95 mainline during the AM and PM peak periods for the two alternatives. As depicted in the table, I-95 throughput traffic is increased with the Recommended Alternative in both NB and SB directions in the AM and PM peak periods. In the AM peak period, the Recommended Alternative increases throughput traffic on I-95 mainline by approximately 6% in the NB direction and 36% in the SB direction. Similarly, during the PM

peak period, throughput traffic is increased by approximately 5% in the northbound direction and 11% in the southbound direction.

SW 8th Street and SW 7th Street Travel times: Table 9.4 summarizes the travel times along SW 8th Street and SW 7th Street during the AM and PM peak periods for the two alternatives. As depicted in the table, travel times are substantially improved with the Recommended Alternative, particularly along westbound SW 7th Street. The Recommended Alternative improves travel times along WB SW 7th Street by approximately 78% during the AM peak and 58% in the PM peak. Correspondingly, along eastbound SW 8th Street, travel times are improved by approximately 36% in the AM peak and 8% in the PM peak.

I-95 Off-Ramp Queue Lengths: Table 9.5 summarizes the travel times along SW 8th Street and SW 7th Street during the AM and PM peak periods for the two alternatives. As depicted in Table 9.5, queue lengths on the SB off-ramps are substantially reduced with the Recommended Alternative – reduction in queue length ranges from approximately 6,800 feet (AM peak) to 8,600 feet (AM peak). Queues on the NB Off-Off Ramp are comparable in the No Build and Recommended Alternative.

Queueing along the I-95 off-ramps is of critical importance to traffic operations and safety along the mainline. In conditions where the queue lengths exceed the available storage on the off-ramps, the resulting queues back onto the mainline and create a significant crash risk and impedance to traffic flow. As depicted in Table 9.5, this queuing condition occurs under the No Build Alternative along SB I-95 – queue lengths extend over 9, 200 feet (in AM and PM), whereas the available storage length is approximately 3,100 feet. This condition is alleviated with the Recommended Alternative - queue lengths generated approximately 650 feet in the AM peak and 2,400 feet in the PM peak.

Network-wide MOEs: Table 9.6 summarizes the network-wide MOEs during the AM and PM peak periods for the two alternatives. As depicted in the table, the Recommended Alternative consistently out performs the No Build Alternative for all performance measures – average speed, total delay, latent delay, latent demand, total travel time and total stops. The improvements generated by the Recommended Alternative for in these network-wide performance measures are very substantial – ranging from approximately 40% to 100% when compared to No Build Alternative.

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Table 9.2: Travel Times - 2045 I-95 Mainline

AM PEAK		No-Build	Recommended	Change
I-95 Northbound	SW 25th Rd Entrance to ~1500' north of US-1 Entrance	**02:58 (38 mph)**	**02:17 (50 mph)**	**-23%**
I-95 Southbound	~1500' north of SW 7th St Exit to SW 25th Rd Exit	**03:37 (30 mph)**	**01:57 (55 mph)**	**-46%**
PM PEAK		**No-Build**	**Recommended**	**Change**
I-95 Northbound	SW 25th Rd Entrance to ~1500' north of US-1 Entrance	**01:58 (57 mph)**	**01:58 (57 mph)**	**0%**
I-95 Southbound	~1500' north of SW 7th St Exit to SW 25th Rd Exit	**02:48 (39 mph)**	**01:57 (55 mph)**	**-30%**

Note: Percentages indicate comparisons to the No-Build Alternative.

Table 9.3: Throughput Volume - 2045 I-95 Mainline

AM PEAK (vehs)		No-Build	Recommended	Change
I-95 Northbound	North of South Miami Avenue On-Ramp	**5735**	**6059**	**+6%**
I-95 Southbound	South of SW 25th Road Off-Ramp	**1525**	**2078**	**+36%**
PM PEAK (vehs)		**No-Build**	**Recommended**	**Change**
I-95 Northbound	North of South Miami Avenue On-Ramp	**6329**	**6631**	**+5%**
I-95 Southbound	South of SW 25th Road Off-Ramp	**1718**	**1907**	**+11%**

Note: Percentages indicate comparisons to the No-Build Alternative.

Table 9.4: Travel Times - 2045 SW 8th Street and SW 7th Street

AM PEAK PERIOD (min:sec)		No-Build	Recommended	Change
SW 8th Street (Eastbound)	8th Avenue to S Miami Avenue	**04:50**	**03:07**	**-36%**
SW 7th Street (Westbound)	S Miami Avenue to 8th Avenue	**16:21**	**03:35**	**-78%**
PM PEAK PERIOD (min:sec)		**No-Build**	**Recommended**	**Change**
SW 8th Street (Eastbound)	8th Avenue to S Miami Avenue	**04:15**	**03:55**	**-8%**
SW 7th Street (Westbound)	S Miami Avenue to 8th Avenue	**13:16**	**05:37**	**-58%**

Note: Percentages indicate comparisons to the No-Build Alternative.

Table 9.5: 2045 Off-Ramp Queue Length Analysis

Intersection	Direction	Available Storage (feet)	No-Build Max Queue (feet)		Recommended Max Queue (feet)	
			AM	PM	AM	PM
SW 8th Street at I-95 off-ramp	NB Off-Ramp	1,210	420	785	410	730
SW 7th Street at I-95 off-ramp	SB Off-Ramp	3,100	9,270	9,270	650	2,425

Table 9.6: 2045 Network-wide Performance

AM PEAK	No Build	Recommended	Change
Average Speed (mph)	20	35	75%
Total Delay (hr)	4,806	1,273	-74%
Latent Delay (hr)	10,330	3,199	-69%
Latent Demand	2,902	1,161	-60%
Total Travel Time (hr)	8,180	4,715	-42%
Total Stops	337,403	90,043	-73%
PM PEAK	**No Build**	**Recommended**	**Change**
Average Speed (mph)	19	31	63%
Total Delay (hr)	4,641	1,520	-67%
Latent Delay (hr)	7,944	485	-94%
Latent Demand	3,637	6	-100%
Total Travel Time (hr)	7,740	4,752	-39%
Total Stops	313,235	111,188	-65%

Note: Percentages indicate comparisons to the No-Build Alternative.

10.0 OTHER CONSIDERATIONS

10.1 Environmental Considerations

The project evaluation will require the completion of a Natural Resources Evaluation (NRE) in accordance with Chapter 9 (Wetland and Other Surface Waters), Chapter 16 (Protected Species and Habitat) and Chapter 17 (Essential Fish Habitat) of the FDOT PD&E Manual.

During the Efficient Transportation Decision Making (ETDM) screening for this project, the potential presence of wetlands associated with the Miami River was documented within the project area. Seagrass and corals are designated by the South Atlantic Fishery Management Council as Essential Fish Habitat (EFH) and as a Habitat Area of Particular Concern (HAPC). The replacement or expansion of the I-95 Bridge over the Miami River could impact corals and seagrass that may be present within the footprint of the project. The potential presence of and impact to wetlands (i.e. seagrass) will need to be evaluated in accordance with Chapter 9 (Wetland and Other Surface Waters) of the FDOT PD&E Manual. EFH will need to be evaluated in accordance with Chapter 17 (Essential Fish Habitat) of the FDOT PD&E Manual.

Should the presence of wetlands be identified, avoidance and/or minimization will be required. If avoidance and/or minimization is not practicable, a mitigation plan will be prepared. Best management practices (BMPs) shall be utilized during construction to avoid impacts to surface waters, and, if found to be present, wetlands. In addition, Environmental Resource Permit (ERP) or Right-of-Way (ROW) Permits may be required in accordance with federal, state, and local laws and regulations.

The replacement or expansion of the I-95 Bridge over the Miami River could affect listed species designated under the Endangered Species Act (ESA). Sea turtles and smalltooth sawfish are known to inhabit the area. The Miami River is designated as Critical Habitat for the manatee. An ESA evaluation will be included in the evaluation of protected species and habitat to be conducted per Chapter 16 (Protected Species and Habitat) of the FDOT PD&E Manual. Avoidance and minimization measures will be required to limit impacts to listed species during construction.

The Miami River is part of the Biscayne Bay Aquatic Preserve [an Outstanding Florida Water (OFW)] and a recharge area of the Biscayne Aquifer (a Sole Source Aquifer)]. Widening the bridge may result in

additional impervious surface area, resulting in increased surface and stormwater runoff into the surrounding waters. To address potential water quality impacts, an ERP may be required. Stormwater management measures and BMPs shall be implemented during construction to avoid water quality impacts to this resource

10.2 Anticipated Design Variations and Exceptions

No design exceptions or variations are anticipated at this time for implementation of the Recommended Alternative. As the project moves forward through final design and construction, any design variations or exceptions that should arise will be processed through the FDOT and the FHWA for approval.

10.3 Safety

As discussed under Section 3.5 of the IMR, traffic safety is a concern along the arterial network within the vicinity of the I-95/SR 90 Interchange. Several intersections within the vicinity of the interchange have historically experienced abnormally high crash rates. These include the existing I-95 ramp terminal intersections at SW 8th Street and 3rd Avenue, the ramp terminal intersection at SW 7th Street and SW 4th Avenue and the adjacent intersections. The extensive weaving activities at these locations, together with the excessive traffic flows have been identified as contributing factors to the abnormally high crash rates at these locations. The Recommended Alternative for the I-95/SR 90 Interchange will provide improvements to address these and other safety concerns within the influence area of the interchange. Safety improvements include:

- The proposed new on-ramp from SW 7th Street to NB I-95 will substantially reduce weaving activity within the vicinity of the interchange. In the existing condition, access to NB I-95 from SW 7th Street involves travelling a circuitous route – WB along SW 8th Street, SB along SW 4th Avenue and EB along SW 8th Street to the I-95 NB-On-Ramps. These maneuvers are accomplished across multiple lanes within very short city blocks and this creates a high crash risk condition. The proposed new on-ramp from SW 7th Street will alleviate this condition by providing a direct access

to NB I-95 for approximately 940/1040 vehicles that make this movement during the AM/PM peak hours (2045 estimates).

- The proposed new off-ramp from SB I-95 to EB SW 8th Street will substantially reduce weaving activity within the vicinity of the interchange. In the existing condition, access from SB I-95 to EB SW 8th Street involves travelling south along SW 4th Avenue and then making a left turn to travel east on SW 8th Street. This maneuver is accomplished across multiple lanes within a very short city block and creates a high crash risk condition. The proposed new SB off-ramp will alleviate this condition by providing a direct access to EB SW 8th Street for approximately 1,170/800 vehicles that make this movement during the AM/PM peak hours (2045 estimates).
- The proposed new I-95 NB on-ramp and I-95 SB off-ramp will reduce conflicting movements at three high crash intersections: SW 8th Street at 4th Avenue; SW 8th Street at 3rd Avenue and SW 7th Street at SW 4th Avenue. This reduction in conflicting traffic will correspondingly reduce crashes and in particular right angle crashes at these intersections.
- The proposed new SB I-95 off-ramp to EB SW 8th Street will alleviate the risk for queue spillback onto I-95 mainline. VISSIM microsimulation analysis demonstrates that with the existing interchange configuration, queues at the I-95 SB off-ramp will exceed the available storage resulting in queue spillbacks onto I-95 mainline during AM and PM peak periods. This condition creates a major safety concern with standing queues on I-95 mainline adjacent to high speed traffic. This safety concern is alleviate by the Recommended Alternative due to the substantial reduction in the generated queue lengths.

Efforts were made to apply the Highway Safety Manual (HSM) predictive methods to quantify the anticipated safety benefits resulting from the above improvements. However, investigations revealed that the HSM predictive procedures could not be directly applied to these improvements as the analysis of one-way facilities (similar to SW 8th Street and SW 7th Street) is not currently covered by the HSM. Review of the FHWA's Crash Modification Factors Clearinghouse also identified no CMF that could be reasonably applied to the proposed improvements. Hence, anticipated safety benefits were not quantified. Nonetheless, it is recognized that the proposed improvements will yield substantial safety

benefits to the roadway network within the area of influence of the interchange. It should further be noted that the conceptual design plans for the proposed interchange modifications were developed in accordance with the FDOT's Design Standards, Plans Preparation Manual and FHWA's Policy on Geometric Design of Highways and Streets. Adherence to these standards will facilitate safety and efficient traffic operations along the corridor.

11.0 JUSTIFICATION FOR PROJECT

The FHWA's Policy on Access to the Interstate System provides the requirements for the justification and documentation necessary to substantiate any proposed changes in access to the Interstate System. The policy is published under the Federal Register, Volume 74, Number 165, which was updated on May 22, 2017. The responses provided herein for both of the policy statements demonstrate compliance with these requirements and justification for the proposed interchange modifications at I-95 and SR 90/SW 8th Street/SW 7th Street in Miami-Dade County, Florida.

Policy:

It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21st Century by assuring that it provides the highest level of service in terms of safety and mobility. Full control of access along the Interstate mainline and ramps, along with control of access on the crossroad at interchanges, is critical to providing such service. Therefore, FHWA's decision to approve new or revised access points to the Interstate System under Title 23, United States Code (U.S.C.), Section 111, must be supported by substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements.

Considerations and Requirements:

1. ***An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).***

The operational analysis conducted for the IMR confirmed that the proposed interchange modifications are not expected to have any significant adverse impacts on safety and operations on the interstate facility (I-95). Analyses performed using both the Highway Capacity Manual procedure and microsimulation techniques confirm that the Recommended Alternative will improve traffic operations along NB and SB I-95 within the area of influence of the interchange. In addition traffic operations at the I-95 terminal intersections and adjacent intersections will be improved. The analyses indicate the following operational improvements in the design year (2045) along various segments of the study network:

NB I-95: The Recommended Alternative will improve travel times along NB I-95 by approximately 23% in the AM peak hour when compared to the No Build Alternative. In the PM peak hour travel times are approximately the same along NB I-95 in both the No Build and Recommended Alternative. The Recommended Alternative increases throughput traffic along NB I-95 by approximately 6% in the AM peak and 5% in the PM peak.

SB I-95: The Recommended Alternative will improve travel times along SB I-95 by approximately 46% in the AM peak hour and 30% in the PM peak hour when compared to the No Build Alternative. Furthermore, the Recommended Alternative increases throughput traffic along SB I-95 by approximately 36% in the AM peak and 11% in the PM peak. This dramatic improvement in operations in the southbound direction result for benefits offered by the Recommended Alternative in alleviating queue spillback from the off-ramp onto the mainline which occurs under the No Build Alternative. This is also a significant safety benefit resulting from the Recommended Alternative.

SW 8th Street Traffic Operations: The Recommended Alternative will improve travel times along SW 8th Street by approximately 36% during the AM peak period and 8% during the PM peak period. The proposed new NB on-ramp and SB off-ramp will substantially reduce conflicting traffic at critical intersections - SW 8th Street at SW 4th Avenue; and SW 8th Street at 3rd Avenue (northbound ramp terminal). This reduction in traffic improves safety and operations at the intersections.

SW 7th Street Traffic Operations: The Recommended Alternative will improve travel times along SW 7th Street by approximately 78% during the AM peak period and 58% during the PM peak period. The proposed new NB on-ramp and SB off-ramp will substantially reduce conflicting traffic at critical intersections - SW 7th Street at SW 3rd Avenue; and SW 7th Street at 4th Avenue (southbound ramp terminal). This reduction in traffic improves safety and operations at the intersections.

Network-wide Performance Measures: The Recommended Alternative generates significant improvements across all network-wide performance measures. These include: Average speed (75%/63% increase in AM/PM peaks); total delay (74%/67% decrease in AM/PM peaks); latent demand (69%/94% decrease in AM/PM peaks); total travel time (42%/39% decrease in AM/PM peak); and total stops (73%/65% decrease in AM/PM peaks).

Safety Enhancements: The I-95 ramp terminal intersections at SW 8th Street and SW 7th Street and the adjacent intersections are high crash locations. The existing circuitous routs, extensive weaving maneuvers and excessive traffic volumes are all contributing causes to the abnormally high crash rates experienced at these intersections. The No Build Alternative offers no improvements to address these contributing causes, hence the high crash rates will continue if no corrective measures are implemented. The Recommended Alternative addresses these contributing causes by:

- Providing direct access to NB I-95 form SW 7th Street (ne on-ramp)
- Providing direct access to EB SW 8th Street from SB I-95 (new off-ramp)
- Reducing conflicting traffic at the intersections

The above improvements will substantially improve safety conditions at the arterial intersections.

The proposed interchange modifications will modify access to/from I-95 and necessitate changes to the current signing at the I-95/SR 90 Interchange. A conceptual signing plan for the interchange modifications is included under Appendix H. The signing plan will be fully coordinated with FHWA in advance of construction.

2. ***The proposed access connects to a public road only and will provide for all traffic movements. Less than ``full interchanges'' may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)).***

The IMR proposes no new interchanges along I-95. The existing interchange provides access to public roads only. The improvements proposed at the interchange will maintain full access to SR 90/SW 8th Street/SW 7th Street and accommodate all movements.

12.0 FUNDING PLAN

Construction cost for the proposed improvements is estimated at $45.5M. According to the FDOT current Five Year Work Program schedule, funding for the final design phase of this project is in the year 2020 and construction funding is in 2023. These dates are subject to change as the Work Program is frequently updated and modified as project priorities change.

Appendices:

Appendix A: MLOU

Appendix B: VISSIM Existing Conditions Calibration Report

Appendix C: Traffic Signal Timing Sheets

Appendix D: LOS Analysis – Existing Conditions

- HCS 2015 (freeway segments)
- Synchro 2015 (intersections)

Appendix E: Level of Service – No Build

- HCS 2025 (freeway segments)
- HCS 2045 (freeway segments)
- Synchro 2025 (intersections)
- Synchro 2045 (intersections)

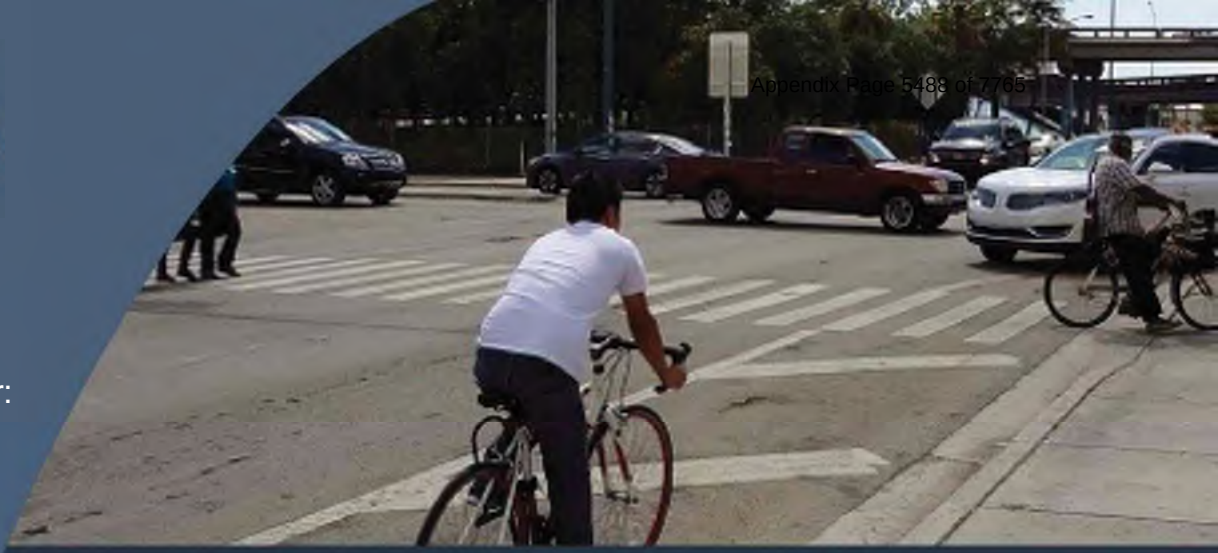
Appendix F: Level of Service Build Alternatives

- HCS 2025 Build 4-1
- HCS 2045 Build 4-1
- Synchro 2025 Build 4-1
- Synchro 2045 Build 4-1
- HCS 2045 Build 4-2
- Synchro 2045 Build 4-2
- HCS 2045 Build 4-3
- Synchro 2045 Build 4-3
- HCS 2045 Build 4-4
- Synchro 2045 Build 4-4

Appendix G: VISSIM Outputs (2045 No Build and Recommended Alternative)

Appendix H: Recommended Alternative Concept Signing Plan

Appendix A: MLOU



Financial Management Number: 432639-6-22-01

Federal Aid Project Number: 0202-054-P

Efficient Transportation Decision Making Number: 14230

August 31, 2016

Interchange Modification Report (IMR) Methodology Letter of Understanding (MLOU)

SW 7th Street / SW 8th Street PD&E Study from SR 9/SW 27th Avenue to SR 5/US-1/Brickell Avenue

Florida Department of Transportation Interchange Access Request Methodology Letter of Understanding (MLOU)

Type of request ☐ IJR ☒ IMR ☐ IOAR

Type of Process ☒ Programmatic ☐ Non-Programmatic

SR 90/SW 7th Street and SW 8th Street, PD&E Study
FPID No.: 432639-6-22-01 / ETDM No.: 14230 / FAP No.: 0202054P

Coordination of assumptions, procedures, data, networks, and outputs for project traffic review during the access request process will be maintained throughout the evaluation process.

Full compliance with all MLOU requirements does not obligate the Acceptance Authorities to accept the IAR.

The Requester shall inform the approval authorities of any changes to the approved methodology in the MLOU and an amendment shall be prepared if determined to be necessary.

Requestor	Bao-Ying Wang, P.E. *Project Manager*	3/30/2017 *Date*
Interchange Review Coordinator	Lisa Colmenares, AICP Planning Manager, FDOT D6	03/30/2017 *Date*
State Interchange Review Coordinator	Andrew Young *Systems Planning Office – Central Office*	4/3/17 *Date*

1.0 Project Description

Provide background or supporting information that explains the basis for the request.

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for SR 90/US 41/SW 7th Street/SW 8th Street, located in Miami-Dade County, Florida. The limits of the PD&E Study extend along the one-way pair of SW 7th Street and SW 8th Street from SR 9/SW 27th Avenue (western limit) to SR 5/US 1/Brickell Avenue (eastern limit). The limits of the project incorporate the existing interchange at I-95 and SW 7th Street and SW 8th Street. As part of the PD&E Study, the FDOT proposes to implement improvements at the I-95 interchange to increase capacity and enhance safety conditions. The proposed improvements result from a FDOT Planning Study for SW 7th Street/SW 8th Street, which examined conceptual improvements for the one-way pair arterials and corresponding improvements to the I-95 Interchange. The FDOT has determined that the proposed interchange improvements will warrant preparation of an Interchange Modification Report (IMR), in accordance with the criteria specified in the Interchange Access Request User's Guide, March 2015. It is anticipated that the IMR will be processed through the expedited programmatic approval process, as agreed upon in the Programmatic Agreement between the Federal Highway Administration (FHWA), Florida Division and FDOT, dated April 2, 2015. This document serves as the Methodology Letter of Understanding (MLOU) that outlines the criteria, assumptions, processes (analyses), and documentation requirements for preparation of the I-95 at SW 7th Street/SW 8th Street IMR. The IMR will serve as the traffic operations analysis document for the related National Environmental Policy Act (NEPA) study encompassing the interchange and the arterial improvements.

A. *Purpose and Need Statement*

Provide the Purpose, the Need, and the Goals and Objectives.

Purpose: The purpose of this project is to improve the existing and future physical, operational, and safety deficiencies along the one-way pair of SR 90/SW 7th Street and SR 90/SW 8th Street, including at the interchanges of these roadways with Interstate 95 (I-95). The project corridor currently operates at an unacceptable Level of Service (LOS) F. Conditions are projected to deteriorate further if improvements are not implemented by 2040, as the roadways will have insufficient capacity to accommodate the future travel demand.

Need: The need for the project is based on the following criteria:

- **CAPACITY/TRANSPORTATION DEMAND (Improve Traffic Operations and Level of Service)**. A 2013 traffic analysis performed as part of the Planning Study indicates that very few intersections were operating at a level of service that meets the City of Miami requirements for this type of facility. The No-Build 2040 traffic results indicates that operations of the intersections and segments along the corridor will further degrade and continue to experience heavy delays during peak hours if no improvements are made. While this project will not focus on widening the existing roadways, it will evaluate operational alternatives to address the 2040 transportation demands by improving all

modes of transportation.

Miami-Dade County is the fastest growing county in Florida. According to the US Census, the County experienced a population growth from 2,496,435 in 2010 to 2,617,176 in 2013, representing an increase of 4.8%. The City of Miami has grown from a population of 399,457 in 2010 to 417,650 in 2013, representing an increase of 4.5%. The population growth within the City of Miami, along with new developments in the downtown Miami and Brickell areas, will result in a significant increase in surface transportation demand and will worsen the already congested SR 90/SW 7th Street and SR 90/SW 8th Street corridors. Additionally, the Brickell area has seen significant growth in the last decade with the addition of high density, high-rise developments, which will increase traffic along the corridor and further degrade the LOS. Based on the Southeast Florida Regional Planning Model (SERPM), a 0.89% to 1.90% annual growth rate for the study area roadways has been identified. The PD&E Study will evaluate alternatives to accommodate the anticipated transportation demand.

- **SAFETY (Improve Safety):** Crash data for SR 90/SW 7th Street and SR 90/SW 8th Street from SR 9/SW 27th Avenue to SR 5/US 1/Brickell Avenue has been evaluated for the four-year period between 2010-2013. This data indicates that a total of 3,008 crashes occurred on the project corridor (1,249 incidents westbound and 1,759 incidents eastbound). The predominant types of crashes on SR 90/SW 7th Street (westbound) were angle (34%), rear end (23%) and collisions with moving vehicles on other roadways (21%). Similarly, the most prevalent crashes along SR 90/SW 8th Street (eastbound) included rear end (27%), angle collisions (22%) and collisions with moving vehicles on other roadways (23%). Crashes of this type are typically attributed to the congested conditions during peak periods.

  Analyzing the severity of these crashes, it was reported that seven (7) crashes resulted in seven (7) fatalities (one fatality per crash). Six (6) of these fatal crashes occurred on SR 90/SW 8th Street, four (4) of which involved pedestrians. Furthermore, there were 531 collisions involving 779 injuries between 2010 and 2013. This high incidence of severe crashes underscores the need for an in-depth or formal safety review of the corridor. The PD&E study will develop alternatives that will help address safety concerns by eliminating pedestrian and vehicular conflicts, providing bicycle amenities, and ensuring that the project corridor meets FDOT's safety and mobility goals as travel demand continues to grow.

- **SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT (Improve Access to Urban Central Business Districts**). Currently, the existing land use adjacent to the project corridor is predominantly multi-family residential and commercial. The land use along SR 90/SW 8th Street consists of commercial uses, while SR 90/SW 7th Street consists of residential areas west of I-95 and commercial use with scattered residential areas east of I-95. The residential areas within the study area are composed predominantly of multi-family buildings, with high-rise

establishments located east of I-95 in the Brickell area. The commercial uses vary and include various shopping plazas, food and entertainment establishments, supermarkets, pharmacies, gas stations, and car dealerships.

According to the City of Miami 2020 Future Land Use Map, the areas east of I-95 are designated as the Little Havana and Brickell Urban Central Business Districts (UCBD) and Residential Density Increase Areas (RDIA). These districts include restricted commercial, allowing residential uses to a maximum density equivalent to 'High Density Multifamily Residential' with small sections of general commercial and public facilities/recreation. West of I-95 is predominantly planned to be restricted commercial uses, with medium density multi-family and single-family residential use as the project corridor approaches SR 9/SW 27th Avenue.

The Brickell UCBD is home to one of South Florida's major financial districts with one of the largest concentrations of international banks located along Brickell Avenue. Various consulates and foreign trade offices are located in Brickell, as well. The Little Havana UCBD will house the Brickell City Centre, a 5.4-million square foot mixed-use urban development. East of SR 5/US 1/Brickell Avenue, the project corridor continues as SE 8th Street (Brickell Key Drive) which connects to Brickell Key, a gated island of upscale high-rise developments and hotel towers. The project improvements will support the City of Miami's plans for future development and economic growth by improving access to these areas

- **MODAL INTERRELATIONSHIPS (Improve Multimodal Connectivity)**
  Currently, there are sidewalks along both sides of SR 90/SW 7th Street and SR 90/SW 8th Street. There are no bicycle accommodations present; however, the 2015 Bicycle Master Plan has designated bicycle routes on these facilities. In addition, several cross-streets in the study area including SW 2nd Avenue, SW 1st Avenue and South Miami Avenue currently have designated or planned bicycle lanes. The M-Path Trail is a paved multi-use trail in Miami-Dade County that begins at SW 1st Avenue near the Miami River and crosses the SR 90/SW 7th Street and SW 8th Street corridor. There are several mass transit facilities serving the corridor, such as the Miami-Dade Transit bus routes 8, 6, 24, 48, 95, 207, and 208, and the Eighth Street Metromover Station. The Eighth Street Metromover Station connects to the Brickell Metromover Station and Brickell Metrorail Station. The Metromover provides free service around the downtown Miami area and to the Government Center Metrorail Station. The Brickell Metrorail Station offers service to the Palmetto Expressway, south to Dadeland Mall and to Miami International Airport via the Miami Intermodal Center (MIC). The project will improve intermodal connectivity by providing enhanced pedestrian/bicycle and transit accommodations.

Objective: The overall objectives of this project include the following elements:

- Address physical, operational and safety deficiencies existing at the

interchange.

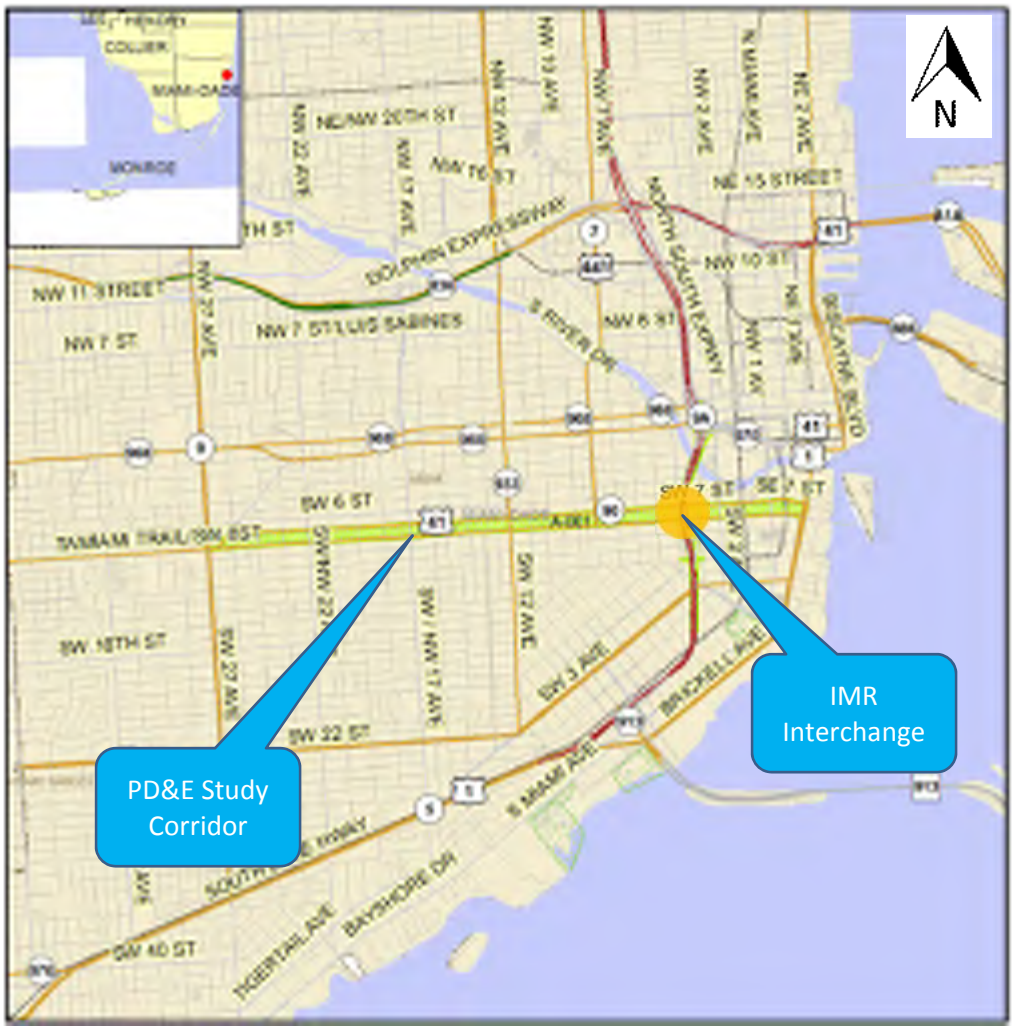
- Enhance mobility and traffic circulation consistent with the long term vision for improvements to SR 90/SW 7th Street and SR 90/SW 8th Street.
- Minimize environmental and social impacts

B. Project Location

Provide project description and a map of the IAR project location.

A location map for the project is shown in Figure 1. The interchange of I-95 at SW 7TH Street and SW 8th Street is located within the City of Miami in Miami-Dade County, Florida. An adjacent interchange is located to the south (approximately 1.1 miles) with ramp connections serving SW 25th Street and Rickenbacker Causeway. Located to the north (0.5 miles) is an adjacent interchange with ramp connections serving Biscayne Boulevard, Miami Avenue and NW 2nd Street.

Figure 1: Project Location Map



C. *Area of Influence*
Provide a description of the area of influence along the main line and cross streets.

The anticipated area of influence for the project is depicted in Figure 2. It incorporates the following road segments:

- I-95 from south Rickenbacker Causeway to north of NW 2nd Street. This incorporates the mainline and ramp systems connecting to SW 25th Street, Rickenbacker Causeway, Biscayne Boulevard, Miami Avenue, NW 2nd Street, SW 7th Street and SW 8th Street.
- SW 7th Street from SW 8th Avenue to South Miami Avenue. This incorporates the following intersections:
    - SW 7th Street at SW 8th Avenue
    - SW 7th Street at SW 7th Court
    - SW 7th Street at SW 6th Avenue
    - SW 7th Street at SW 5th Avenue
    - SW 7th Street at SW 4th Avenue and I-95 Southbound Off-Ramp.
    - SW 7th Street at SW 3rd Avenue
    - SW 7th Street at SW 2nd Avenue
    - SW 7th Street at SW 1st Court
    - SW 7th Street at SW 1st Avenue
    - SW 7th Street at South Miami Avenue

- SW 8th Street from SW 8th Avenue to South Miami Avenue. This incorporates the following intersections:
    - SW 8th Street at SW 8th Avenue
    - SW 8th Street at SW 7th Avenue
    - SW 8th Street at SW 6th Avenue
    - SW 8th Street at SW 5th Avenue
    - SW 8th Street at SW 4th Avenue and I-95 Southbound On-Ramp.
    - SW 8th Street at SW 3rd Avenue and I-95 Northbound On-Ramp
    - SW 8th Street at SW 2nd Avenue
    - SW 8th Street at SW 1st Court
    - SW 8th Street at SW 1st Avenue
    - SW 8th Street at South Miami Avenue

While the anticipated area of influence includes the ramps systems connecting to I-95 at adjacent interchanges, it does not include the terminal intersections at the service roads, namely: SW 25 Street, Rickenbacker Causeway, Biscayne Boulevard, Miami Avenue and NW 2nd Street.

FDOT

NW 7th Street and NW 8th Street PD&E Study

Area of Influence Map

Figure 2

D. Project Schedule

Identify the schedule of production activities consistent with a proposed conceptual funding plan and opening year.

Funding in the amount of $2,040,000 is programmed for the PD&E Study under Fiscal Year (FY) 2016 in both the FY2015 - 2020 FDOT Work Program (FM #432639-6) and the FY 2016 - 2020 Draft Final Transportation Improvement Program (TIP) of the Miami-Dade County Metropolitan Planning Organization (MPO). The project is also identified as a Partially-Funded Priority IV (2031-2040) project in the Cost Feasible Plan of the Miami-Dade MPO 2040 Long Range Transportation Plan (LRTP) with $93,000 allocated in the Pre-Engineering phase. Further, the project is identified in the State Transportation Improvement Program (STIP) with $399,890 allocated for the PD&E phase. Location Design Concept Acceptance (LDCA) for the PD&E is expected circa March 2018. If funding for later phases are advanced, the project could have an opening year of 2020.

2.0 Analysis Years

A. Traffic Forecasting

- Base year 2010
- Horizon year 2040

B. Traffic Operational Analysis

- Existing year 2015 (No Build)
- Opening year 2020 (No Build + Recommended Build Alternative)
- Interim year 2030 (No Build + Recommended Build Alternative)
- Design year 2040 (No Build + All Build Alternative)

A year of failure analysis shall be performed for Preferred Alternative, in case a failing LOS is obtained in Design Year.

3.0 Alternatives

The No-Build and Build alternatives shall be analyzed in the IAR. Details of all reasonable build alternatives considered, including those eliminated from further considerations, shall be documented. The documentation for the alternatives eliminated can be minimal like a summary of what was considered, reasons for elimination etc. Build Alternatives meeting the purpose and need of the project shall have a more detailed description and be evaluated in the IAR.

The implementation of TSM&O alternative will be considered in the IAR.

The IMR will consider the following alternatives:

No Build: The No Build Alternative will include the existing year (2015) roadway conditions plus all funded or programmed projects that are scheduled to be completed and open to traffic during the analysis year being considered (2020, 2030 or 2040). The No Build Alternative will serve as a baseline for comparison against other Build Alternatives. The No

Build Alternative incorporates the following (see Figure 3 on page 11):

- SW 7th Street: 3 lanes one-way westbound
- SW 8th Street: 3 lanes one-way eastbound
- Off-ramp from SB I-95 to NW 7th Street
- On-Ramp from SW 4th Avenue to SB I-95
- On-Ramp from EB SW 8th Street to NB I-95
- On-Ramp from SW 3rd Avenue to NB I-95

Transportation System Management and Operations (TSM&O): A TSM&O alternative will include implementation of non-capacity improvements to enhance safety and traffic flow through the interchange. These improvements include, but are not limited to: ramp metering, addition of auxiliary lanes/turn lanes, intelligent transportation systems (ITS) deployment and traffic signal optimization. These TSM&O improvements will be incorporated as a component of all the considered Build Alternatives.

Build Alternatives: Resulting from the planning study conducted by the FDOT in 2015, four preliminary alternative scenarios were developed for improvements along SW 7th Street and SW 8th Street. Associated with each build scenario are corresponding alternatives for improvements at the I-95 Interchange. The interchange improvements will complement the proposed traffic flow patterns along SW 7th Street and SW 8th Street while adding additional movements at the interchange. The IMR will consider, as a minimum, these preliminary alternative build scenarios which are described below.

Build Scenario 1: Provide two general purpose lanes and an exclusive transit lane on both SR 90/SW 8th Street and SR 90/SW 7th Street, where westbound traffic will use SR 90/SW 8th Street and eastbound traffic will utilize SR 90/SW 7th Street (reverse one-way traffic flow along on SW 7th Street and SW 8th Street). In addition, an eastbound-to-northbound on-ramp to I-95 via SR 90/SW 7th Street and a westbound-to-northbound on ramp to I-95 via SW 8th Street are provided.

Build Scenario 2: Provide a two-lane undivided roadway (one lane in each direction) with exclusive left-turn lanes at signalized intersections on both SR 90/SW 8th Street and SR 90/SW 7th Street. In addition, an eastbound-to-northbound on-ramp to I-95 via SR 90/SW 7th Street and a westbound-to-northbound on-ramp to I-95 via SR 90/SW 8th Street are provided.

Build Scenario 3: Provide three lanes in each direction where westbound traffic will use SR 90/SW 8th Street and eastbound traffic will utilize SR 90/SW 7th Street (reverse one-way traffic flow along SW 7th Street and SW 8th Street). In addition, an eastbound-to-northbound on-ramp to I-95 via SR 90/SW 7th Street and a westbound-to-northbound on-ramp to I-95 via SR 90/SW 8th Street are provided.

Build Scenario 4: Provide three lanes in each direction where eastbound traffic will use SR 90/SW 8th Street and westbound traffic will utilize SR 90/SW 7th Street (retains existing one-way traffic flow along SW 7th Street and SW 8th Street). This alternative considers a westbound-to-northbound on-ramp via SW 7th Street to I-95 beginning just west of SW 2nd Avenue and a southbound-to-eastbound off-ramp of I-95 to SR 90/SW 8th Street which

terminates at SW 3rd Avenue, just south of SW 8th Street.

Figures 4 and 5 depict potential interchange design concepts for:

- Scenarios that reverse the one-way traffic flow pattern along SW 7th Street and SW 8th Street.
- Scenarios that retain the existing one-way traffic flow pattern along SW 7th Street and SW 8th Street

Figure 3: Existing (No Build) Condition

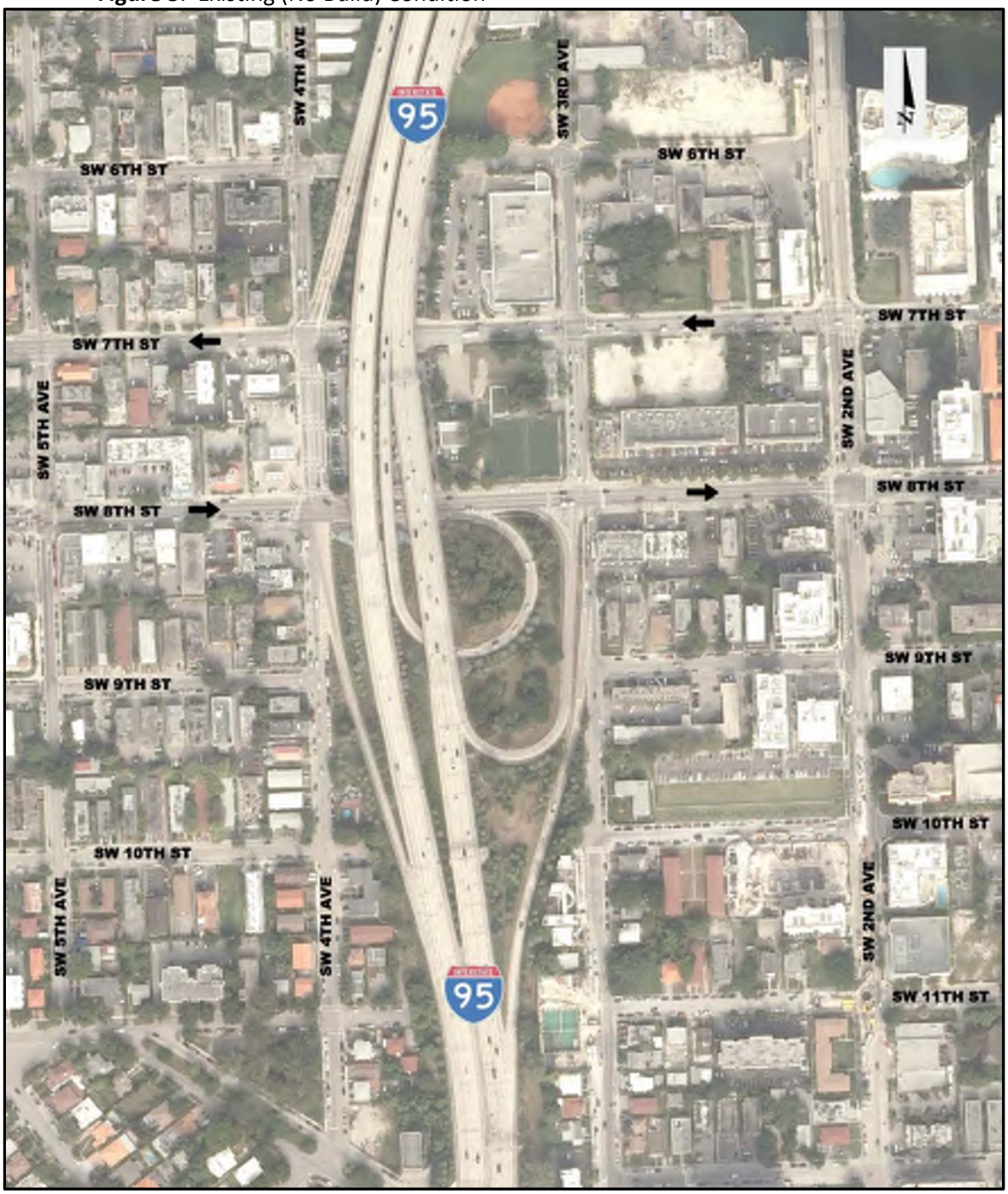


Figure 4: Build Alternative Concept with Reverse Flow: EB on SW 7th Street and WB on SW 8th Street

Figure 5: Build Alternative Concept with Existing Flow: EB on SW 8th Street and WB on SW 7th Street

4.0 Data Collection

The type of data that may be used should be identified.

A. Transportation System Data

Transportation system data will be gathered from various sources, including the following:

- Field review conducted along the project corridor
- Review of aerial photographs
- Miami-Dade County Transportation and Public Works Department
- FDOT Roadway Characteristic Inventory Database
- FDOT Traffic Information Online
- FDOT Crash Analysis Reporting System (CARS)
- Prior studies conducted within the project area, most notably, the 2015 FDOT Planning Study for SR 90/SW 7th Street/SW 8th Street.

B. Existing and Historical Traffic Data

Existing and historical traffic data will be gathered from the following sources:

- Field Traffic Counts. The FDOT has collected and provided existing year (2015) intersection turning movement counts, 72-hour continuous machine counts, vehicle classification counts, travel times, queue lengths and origin-destination counts for the study area associated with the proposed project. These data are documented in the report dated February 26, 2016, SR 90/SW 7th Street/SW 8th Street Corridor Study, Data Collection Memorandum.
- SR 90/SW 7th Street/SW 8th Street Planning Study, Technical Memorandum No. 2, Preliminary Project Traffic Report, April 2015.
- FDOT Traffic Information Online
- Florida's Statewide Transportation Engineering Warehouse for Archived Regional Data (STEWARD)
- Miami-Dade County
- Active DRIs and other major developments

C. Land Use Data

Existing and Future land use data will be gathered from Florida Geographic Data Library (FGDL), Miami-Dade County MPO 2040 LRTP, local government comprehensive plans and any active development of regional impact (DRI) applications or other major developments within the project vicinity.

D. Environmental Data

Environmental data will be gathered from the FGDL and through coordination with local, state and national agencies, these include:

- Miami-Dade County
- Florida Department of Environmental Protection
- South Florida Water Management District

- US Army Corps of Engineers
- US Fish and Wildlife Service
- Florida Fish and Wild Life Commission
- US Environmental Protection Agency

E. Planned and Programmed Projects

Planned and programmed projects will be identified in consultation with the FDOT, Miami-Dade County, other stakeholders and reviewing the following documents:

- Miami-Dade County MPO 2040 LRTP
- Miami-Dade County MPO TIP and Priority Projects
- Local government comprehensive plans
- Active DRI applications and other major developments
- FDOT's Five Year Work Program
- FDOT's Strategic Intermodal System plans
- I-95 Master Plan (on-going FDOT study)

The IMR will be prepared in coordination with planned and programed projects for consistency.

5.0 Travel Demand Forecasting

A. *Selected Travel Demand Model(s)*

This study will utilize Southeast Florida Regional Planning Model (SERPM) v7. The SERPM is a regional Activity Based Model (ABM) developed and maintained by the FDOT. The SERPM is a Time of Day Model capable of producing forecasts for multiple peak and off-peak periods as well as a daily 24 hour period. The SERPM includes a 2010 Base Year and a 2040 Forecast Year. It is the adopted travel demand forecasting tool for FDOT and regional MPOs.

B. Project Traffic Forecast Development Methodology

Describe the methodology and assumptions in developing the future year traffic volumes (AADT and DDHV)

The travel demand forecasting process will cover the area of influence for the IMR as well as the limits of the related PD&E Study along SW 7th Street and SW 8th Street. In order to maintain consistency with traffic development guidelines set forth in the FDOT PD&E Manual and the FDOT Project Traffic Forecasting Handbook, the SERPM will be used to forecast future AADTs which will then be converted to design traffic. The travel demand forecasting process will proceed as follows:

1. **Existing Year (2015) AADT, AM and PM Peak Hour Volumes**: Existing year AADTs and peak hour volumes (AM and PM) will be developed directly from 2015 field counts. The 2015 field counts will be supplemented by data gathered from the prior FDOT Planning Study (2013 counts) and other traffic sources listed under Section 4 of the MLOU. All supplemental counts will be adjusted to 2015 based on traffic growth trends analyses. Traffic volumes will be

checked for reasonableness, adjusted and balanced across the network.

2. **Design Year (2040) AADTs:** SERPM v7 will be used to generate initial estimates of 2040 AADTs for the No Build and Build Alternatives. The AADTs generated by SERPM will be checked for reasonableness and adjusted accordingly. Checks for reasonableness will include comparison of SERPM forecasted volumes against existing (2015) volumes and other traffic forecasts/growth rate estimates. These include: historical growth trends, traffic forecast from prior projects/travel demand models, and population and employment growth estimates. AADTs will be adjusted, as necessary, and balanced across the network.
3. **Design Year (2040) AM and PM Hour Volumes:** Design Year (2040) AM and PM peak hour volumes will be developed using the TmTool or TURNS 5, as approved by FDOT. TmTool/TURNS 5 analysis will utilize existing year peak hour volumes from step 1 (above); 2040 AADTs from step 2 (above) and K-Factors and D-Factors from Table 1 in Section 5E on the following page. The peak hour volumes generated by TmTool/TURNS 5 will be checked for reasonableness, adjusted and balanced across the network. Peak hour volumes for alternative design concepts will be developed by reassignment of traffic volumes based on change in interchange configuration and the associated traffic flow pattern.

   Peak period volumes will be developed for VISSIM microsimulation analysis. It is anticipated that the peak periods will cover 4 hours for the AM peak period and 4 hours in the PM peak period. Volumes for the peak periods will be developed in 15-minute increments by factoring peak hour volumes in accordance with the flow profile from traffic counts along I-95.

4. **Interim Year (2030) AADT, AM and PM Peak Hour Volumes:** Interim year (2030) AADTs, AM and PM peak hour volumes will be interpolated from the 2015 and 2040 traffic volumes.
5. **Opening Year (2020) AADT, AM and PM Peak Hour Volumes:** Opening year (2020) AADTs, AM and PM peak hour volumes will be interpolated from the 2015 and 2040 traffic volumes.

C. *Validation Methodology*

Describe the validation methodology using current FDOT procedures and data collection procedure.

Identify how modifications to the travel demand forecasting model will be made, including modifications to the facility type and area type for links, modifications to socio-economic data and all input and output modeling files for review.

Model validation and forecast modifications will involve the following:

Review of Base Model (2010) Assignments

A review of the SERPM will be conducted to assess whether the model is replicating travel patterns in the study area of influence at a reasonable and acceptable level. A project study area will be defined based on an identified area of influence and model

performance will be assessed within this location. The primary measures used to assess the performance of the 2010 Base model will include the percent deviation between the counts and assigned volumes and the percent Root Mean Square Error (%RMSE) of these deviations. The results of this evaluation will serve as the basis for determining the necessity and scale of a subarea model validation. The model evaluation and subsequent subarea validation will focus on daily assignments, however, TOD period assignments will also be evaluated for informational purposes.

Forecast Model Review

A review of the 2040 Cost Affordable Network model run will be conducted to assess the reasonableness of future traffic projections in the study area. The study area model review will check for network coding accuracy, illogical speed and capacity calculations, illogical trip pathing, reasonableness of trip distribution and assignment, and the reasonableness of population and employment growth.

A series of model sensitivity checks will be performed to confirm the relationship between forecasts of the base and future years. These additional checks are aimed at assessing the accuracy, consistency and reliability of the SERPM with regard to forecasts of demand within the study corridor under different input and model application assumptions.

Growth rates in the study area will be developed based on traffic and population/employment growth between the base and forecast year models. The model growth rates will be analyzed for reasonableness for potential use.

Subarea Model Validation

For this study, FDOT standard measures of travel demand assignment validation will be used to compare the assigned daily model volumes to observed 24 hour traffic counts within the subarea. These measures serve as a tool to validate that the demand model is representing the demand for the corridor accurately.

Based on the results of the SERPM review, a subarea validation may be necessary to further refine the traffic forecasting capabilities of the model in the study area. Based on potential deficiencies identified in the model review, a number of refinements will be considered including:

- Refinements to locations of centroids and centroid connectors
- TAZ structure refinement
- Link coding including facility type, area type, number of lanes, etc.
- Refinement of socioeconomic data in the study area
- Refinement of internal street network in the study area
- Refinements to other factors influencing trip distribution

Once the subarea model validation has been completed, the revised model will be reviewed and assessed to ensure that it is predicting travel patterns at an acceptable level per FDOT and FHWA guidelines.

Future Traffic Forecasts

Future year AADTs will be produced for No-Build and Build alternatives for the 2040 design year. Model runs will be conducted for the future year alternatives and resulting AADT volumes will be reviewed for reasonableness. Opening and Interim year volumes will be generated through a linear interpolation between the base year and design year model results.

Traffic forecasts generated from the SERPM will be compared to traffic forecasts generated from a historical trend analysis of available counts. A comparison of model generated forecasts to traffic forecasts generated for other transportation studies in the area will also be conducted. Professional judgment based on the results of these comparisons will be used to determine whether a smoothing factor is necessary to reasonably adjust model forecasts.

D. Adjustment Procedures

Identify the process used to adjust modeled future year traffic to the defined analysis years. Discuss how trends/growth-rates will be factored into this, if applicable.

The project design year (2040) is consistent with SERPM v7 horizon year (2040). Hence, no adjustments are required for year 2040 forecasts, except for reasonableness checks and balancing. Year 2030 and 2020 volumes will be determined by interpolation between 2040 and 2015 volumes.

E. Traffic Factors

- Utilizing recommended ranges identified in the Project Traffic Forecasting Handbook and Procedure (525-030-120).
- Utilizing other factors, identified below

Table 1: Traffic Factors

Roadway	K(1)	D(2)	T(3)	T_f(4)	PHF(5)
I-95	8.0%	50.9	4.5	2.0	0.95
SW 7th Street	9.0%	1.0	7.5	3.5	0.95
SW 8th Street	9.0%	1.0	7.5	3.5	0.95
Other Streets	9.0%	varies	7.5	3.5	0.95

Notes:

(1) K-factors based on standard K, per FDOT Traffic Online

(2) D-factors based on measured 2015 peak hour traffic distribution, subject to FDOT's recommended maximum and minimums for facility type.

(3) T-factor (T_{24}) based on assessment of 5-year historical classification counts
(4) T_f (Design Hour Truck, DHT) estimated at approximately 50% of T-factor;
(5) PHF: Existing year per measured 2015 counts; Future years = 0.95.

6.0 Traffic Operational Analysis

The area type, traffic conditions, and analysis tools to be used are summarized in this section.

A. Existing Area Type/Traffic Conditions

Area Type	Conditions	
	Under Saturated	Saturated
Rural	☐	☐
Urban Area/Transitioning Area	☐	☒

B. Traffic Analysis Software Used

Software		System Component					
		Freeway				Crossroad	
Name	Version	Basic Segment	Weaving	Ramp Merge	Ramp Diverge	Arterials	Intersections
HCS HCM	2010	☒	☒	☒	☒	☐	☐
Synchro	9	☐	☐	☐	☐	☒	☒
SimTraffic	☐	☐	☐	☐	☐	☐	☐
CORSIM	☐	☐	☐	☐	☐	☐	☐
VISSIM	6.0	☒	☒	☒	☒	☒	☒
Other	☐	☐	☐	☐	☐	☐	☐

The HCM 2010 module in Synchro 9 will be used for intersection level of service and queue length analyses. VISSIM models will be developed for 2015 existing year (for model calibration) and for comparing the 2040 No Build and Recommended Alternative. All other operations analyses (existing year, opening year, interim year, design year, No Build and Build Alternatives) will be performed based on HCM 2010 procedures using HCS or Synchro.

C. Calibration Methodology

- *Calibration methodology and parameters utilized will be documented.*

- *Calibration Measures of Effectiveness (MOEs) and calibration targets.*

Synchro:
Synchro models will be calibrated in accordance with guidelines provided in the FDOT's Traffic Analysis Handbook, March 2014. Specifically, the calibration process will involve the following:

- Lost time adjustment factor will be adjusted to replicate field observed queue lengths.
- In order to calculate reasonable queuing in the model, all link terminals will extend at least 1000 feet from the last node.
- 95th percentile queue lengths that are tagged with "#" or "m" will be examined for the extent of queuing problems.

The calibration process will be supported by observations and data gathered during field reviews. These include: typical queue lengths, delays, operating speeds, right turns on red, signal timings and pedestrian/bicycle activity.

VISSIM:

The simulation calibration will incorporate guidance and criteria from FDOT's Traffic Analysis Handbook (2014) and FHWA's Traffic Analysis Toolbox Volume III (2004). Traffic volume data, travel time data, and field observations will be used in the calibration of the VISSIM model. VISSIM models will be developed for the existing year (2015) for calibration and for the design year (2040) for comparison of the No Build and Recommended Build Alternative. Four-hour AM and PM peak periods analysis will be conducted using 15-minute flow rates.

Several calibration measures will be used to ensure that the models accurately replicate existing year field conditions. The calibration process will consist of measuring and comparing volume, speed, and visual audits. The freeway mainline volumes will be calibrated using criteria specified in the FHWA Traffic Analysis Toolbox (Volume III). Individual link flow targets will be:

- Within 15% of field traffic flows for more than 85% of cases where flows range from 700 veh/hr. to 2,700 veh/hr.
- Within 100 veh/hr. for more than 85% of cases where flows are less than 700 veh/hr.
- Within 400 veh/hr. for more than 85% of cases where flows are greater than 2,700 veh/hr.

The target of the GEH statistic will be less than 5 for more than 85% of the links. Travel time targets will be within 15% (or 1 minute if higher) of the filed measured travel times for more than 85% of cases. Travel speed profiles will be compared against travel time runs with the simulation output to ensure that the simulation provides similar trends and areas of congestion.

Visual audits of the simulation will be performed to analyst's satisfaction to observe speed-flow relationships for individual links. In addition to average travel speeds,

individual link speeds and speed-flow diagrams will be used to evaluate the performance of the freeway segments.

The major bottlenecks within the study area will be calibrated to replicate the capacity and congestion based on field data. Visual audits of the simulation will be performed to analyst's satisfaction to observe speed-flow relationships for individual links and acceptable queuing at intersections and other bottlenecks in the network. In addition to average travel speeds, individual link speeds and speed-flow diagrams will be used to evaluate the performance of the network.

The Existing Conditions analysis will have a simulation duration that allows congestion to build and dissipate, eliminating the potential for unmet demand. Latent demand and delay will be reported and compared among the alternatives. To determine the required number of simulation runs, statistical tests will be performed using a 95% confidence level and an allowable error of 10%. VISSIM default vehicle characteristics shall be used in the model as a starting point. Any parameters that are changed from the default value will be documented and justified accordingly.

All future year Build and No-Build models shall be created from the calibrated 2015 existing model.

D. Selection of Measures of Effectiveness (MOE)

- *The Level of Service criteria for each roadway classification, including mainline, ramps, ramp terminal intersections and the crossroads beyond the interchange ramp terminal intersections are identified below.*

The project is entirely located within the Miami-Dade County Transportation Concurrency Management Area. As such, the applicable level of service standards, per Miami-Dade County Comprehensive Development Master Plan are:

- I-95: LOS D for conditions without express lanes; LOS E for conditions with express lanes.
- SW 7th Street, SW 8th Street and all other roads within project limits: LOS E

It is noted that the FDOT recommendation for roadways in urban areas is LOS D.

- *In addition to the Level of Service criteria, state other operational MOEs to be utilized for the evaluation of alternatives.*

The following MOEs will be used to evaluate the performance of the considered alternatives and shall be reported as listed below:

- Synchro
  - Level of Service – Intersection LOS
  - Delay – Intersection control delay
  - Queue lengths – 95th percentile queues for all analyzed intersection movements.

- HCS
  - Basic Freeway Segments – Density and LOS
  - Freeway Merge, Diverge and Weaving Segments – Density and LOS

- VISSIM
  - Operating Speed
  - Simulated volume
  - Throughput
  - Density
  - Unmet demand
  - Network-wide MOEs: Total travel time, total delay time, vehicle-miles of travel and latent volume

The VISSIM analysis will compare MOEs for the considered alternatives described under Section 3. VISSIM MOEs will be assessed for a simulation period covering a total of 4 ½ hours in the AM period and 4 ½ hours in the PM period for each alternative scenario. The simulation periods will include the following:

- AM Period: ½ hour seeding + 3 hour AM peak period (6:30 to 9:30 AM) + 1 hour shoulder.
- PM Period: ½ hour seeding + 3 hour PM peak period (3:30 to 6:30 PM) + 1 hour shoulder

7.0 Safety Analysis

A. Detailed crash data within the study area will be analyzed and documented.

Years: 2010 – 2014
Source: FDOT Safety Office

The safety analysis will identify existing safety concerns as reflected in the crash data. Proposed improvements will incorporate crash countermeasures, to the extent feasible, within the scope of the project.

8.0 Consistency with Other Plans/Projects

A. The request will be reviewed for consistency with facility Master Plans, Actions Plans, SIS Plan, MPO Long Range Transportation Plans, Local Government Comprehensive Plans or development applications, etc.

B. Where the request is inconsistent with any plan, steps to bring the plan into consistency will be developed.

C. The operational relationship of this request to the other interchanges will be reviewed and documented. The following other IARs are located within the area of influence.

The FDOT is currently performing an I-95 Master Plan Study extending from US 1 in the south to the Miami-Dade/Broward County Line in the north. The Master Plan will develop preliminary conceptual improvements for the I-95 corridor throughout the

study limits. The SW 7th Street and SW 8th Street PD&E Team will coordinate with the I-95 Master Plan Team to ensure that improvements proposed under both projects are developed in a consistent manner.

9.0 Environmental Considerations

A. Status of Environmental Approval and permitting process.

An associated NEPA document will be prepared to support the recommended improvements. The status of the environmental approvals and permitting process will be documented in the IMR.

B. Identify the environmental considerations that could influence the outcome of the alternative development and selection process.

Environmental impacts are being evaluated for the PD&E study. Environmental issues, such as, socio-cultural features, contamination, natural resources, physical resources, and noise sensitive receptors, will be investigated and documented in detail in the associated environmental documents. A summary of key environmental findings from the PD&E will be incorporated in the IMR.

10.0 Coordination

Yes	No/NA	
☒	☐	An appropriate effort of coordination will be made with appropriate proposed developments in the area.
☒	☐	Request will identify and include (if applicable) a commitment to complete the other non-interchange/non-intersection improvements that are necessary for the interchange/intersection to function as proposed.
☒	☐	Request will document whether the project requires financial or infrastructure commitments from other agencies, organizations, or private entities.
☒	☐	Request will document any pre-condition contingencies required in regards to the timing of other improvements and their inclusion in a TIP/STIP/LRTP prior to the Interstate access acceptance (final approval of NEPA document).
☒	☐	Request will document the funding and phasing.

**Explain if No or Not Applicable (N/A) is checked*:

11.0 Anticipated Design Exceptions and Variations

☒ *Design exceptions/variations are not anticipated, but if an exception/variation should arise it will be processed per FHWA and FDOT standards.*

☐ *The following exceptions/variations to FDOT, AASHTO or FHWA rules, policies, standards, criteria or procedures have been identified:*

Design exceptions/variations are not anticipated at this time. However, should the need arise, they will be documented in the IMR.

12.0 Conceptual Signing Plan

A conceptual signing and marking plan shall be prepared and included in the access request.

13.0 Access Management Plan

☐ *Access management plan within the area of influence will not be changed by the proposed improvements to the interchange.*

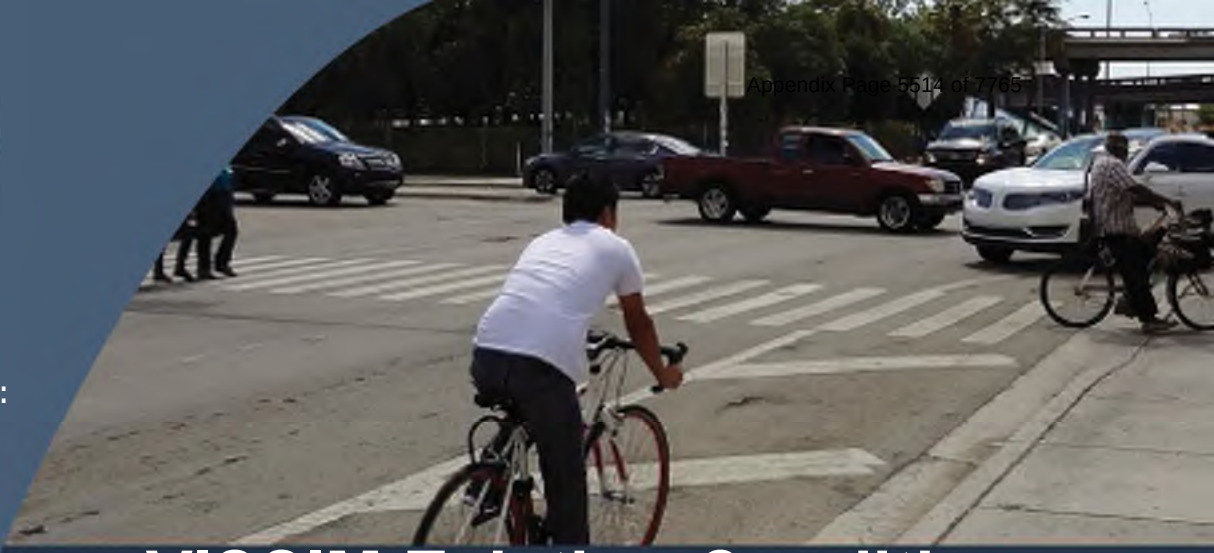
☒ *The improvement will affect access management within the area of influence will be changed. An access management plan will be developed within the area of influence to complement the improvements to the interchange:*

The interchange modifications may impact access to some properties within the area of influence, consistent with recommendations that may result from the PD&E study for modifications to traffic flow patterns along SW 7th Street and SW 8th Street. If access is impacted, an access management plan will be prepared to compliment the improvements and this will be document in the IMR.

14.0 FHWA Policy Points

The FHWA eight policy points will be addressed within the access request.

Appendix B: VISSIM Existing Conditions Calibration Report



Financial Management
Number: 432639-6-22-01

Federal Aid Project Number:
0202-054-P

Efficient Transportation
Decision Making
Number: 14230

MARCH 2018

VISSIM Existing Conditions Calibration Report

SW 7th Street / SW 8th Street PD&E Study from US 441/SW 8th Avenue to S Miami Avenue

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1.0 INTRODUCTION

This document presents the 2015 Existing Conditions simulation model development and calibration results to support the SR 90/SW 7th Street and SW 8th Street Interchange Modification Report. The SW 7th Street and SW 8th Street project area is located in Miami-Dade County between SW 8th Avenue on the west end of the corridor and South Miami Avenue on the east end of the corridor, which covers approximately 0.9 miles. The I-95 project area extends from south of SW 25th Road to north of NW 2nd Street. The simulation analysis was conducted using the VISSIM simulation program (VISSIM 9-10). The following sections discuss the simulation development and the calibration results, which will assist in the Future Conditions simulation analysis effort.

2.0 BACKGROUND

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study for SR 90/US 41/SW 7th Street/SW 8th Street, located in Miami-Dade County, Florida. The limits of the project incorporate the existing interchange at I-95 and SW 7th Street and SW 8th Street. As part of the PD&E Study, the FDOT proposes to implement improvements at the I-95 interchange to increase capacity and enhance safety conditions. The proposed improvements result from a FDOT Planning Study for SW 7th Street/SW 8th Street, which examined conceptual improvements for the one-way pair arterials and corresponding improvements to the I-95 Interchange. The FDOT has determined that the proposed interchange improvements will warrant preparation of an Interchange Modification Report (IMR), in accordance with the criteria specified in the Interchange Access Request User's Guide, March 2015. It is anticipated that the IMR will be processed through the expedited programmatic approval process, as agreed upon in the Programmatic Agreement between the Federal Highway Administration (FHWA), Florida Division and FDOT, dated April 2, 2015. The IMR will serve as the traffic operations analysis document for the related National Environmental Policy Act (NEPA) study encompassing the interchange and the arterial improvements.

3.0 EXISTING CONDITIONS OVERVIEW

Traffic congestion is evident for several hours of the day throughout the SW 7th Street and SW 8th Street study area. Generally speaking, traffic patterns are such that both SW 7th and SW 8th Street experience congestion during the AM peak period, while SW 7th Street experiences congestion during the PM peak period.

3.1 AM Peak Period

Both SW 7th and SW 8th Street experience congestion during the AM peak period. The I-95 southbound off-ramp queues for several hundred feet from the ramp terminal intersection but does not affect the I-95 mainline. The I-95 northbound off-ramp also experiences queues that do not affect the I-95 mainline. Several of the minor streets experience delay due to congestion on SW 7th and SW 8th Street.

3.2 PM Peak Period

During the PM peak congestion is experienced mainly on SW 7th Street. The I-95 southbound off-ramp queues for several thousand feet from the ramp terminal intersection and causes low travel speeds at the diverge from I-95. The I-95 northbound off-ramp experiences queues that do not affect the I-95 mainline. Several of the minor streets experience delay due to congestion on SW 7th and SW 8th Street.

4.0 SIMULATION STUDY AREA

The primary area of influence for this study is SW 7th and SW 8th Street from west of 8th Avenue to east of South Miami Avenue (shown in **Figure 1**). In addition, I-95 from south of SW 25th Road to north of NW 2nd Street is included, as well the ramps systems connecting to SW 25th Road, Rickenbacker Causeway, Biscayne Boulevard, Miami Avenue and NW 2nd Street.

FDOT

SW 7th Street and SW 8th Street PD&E Study

Area of Influence Map

Figure 1

5.0 SIMULATION MODEL DEVELOPMENT

The existing SW 7th and SW 8th Street one-way pair is three lanes in each direction. The simulation analysis included the I-95 mainline travel lanes, ramp merge/diverge areas, and ramp terminal intersections for SW 7th and SW 8th Street. The interchanges/intersections included in the analysis are provided in **Table 1**.

Table 1 – Simulation Study Area Interchanges/Intersections

Arterial	Cross Street
SW 7th Street	South Miami Avenue
	1st Avenue
	2nd Avenue
	3rd Avenue
	4th Avenue
	5th Avenue
	8th Avenue
SW 8th Street	South Miami Avenue
	1st Avenue
	2nd Avenue
	3rd Avenue
	4th Avenue
	5th Avenue
	8th Avenue

5.1 Roadway Geometry

The VISSIM network for the existing conditions analysis was constructed using orthorectified aerial photography (MrSid files), which included 2015 MrSid files for Miami-Dade County obtained from FDOT. The use of MrSid files ensured that the network was scaled precisely and included the appropriate geometric configuration. A spreadsheet tool was used to configure the background files (.bgr) for all the MrSid files, which equated to 5 background files. In addition, field reviews and Google Earth were also used for verification purposes and to confirm operational aspects such as right-turn-on-red and signal phasing (protected/permitted operation). The VISSIM network and background images are illustrated in **Figure 2**.

Figure 2 – VISSIM Simulation Network of SW 7th and SW 8th Street

To facilitate the network construction and assist in the calibration process, several link types and driving behavior sets were used, which include Freeway Basic, Freeway Merge/Diverge, Freeway Weave, Urban and Urban Saturated. Each link type was coded with a different color to assist in error-checking as shown in **Figure 3**.

Figure 3 - Example of VISSIM Link Types

In addition, the links were coded in a manner to correlate with the most appropriate facility type. The general methodology for coding the links was as follows:

- **Urban**: Links for arterial roadways and on-/off-ramps
- **Urban Saturated**: Links for arterial roadways in congested areas along SW 7th and SW 8th Street near I-95
- **Freeway Merge/Diverge**: Links with a length of 1,500 ft downstream of merge areas and 1,500 ft upstream of diverges
- **Freeway Weave**: Links between a closely-spaced on-ramp and off-ramp
- **Freeway Basic**: Links used when they are not considered to be merge/diverge or weave areas

5.2 Speed Distributions

The Desired Speed Decisions and Reduced Speed Areas were coded in VISSIM based upon the type of roadway segment/facility. Desired Speed Decision points are used for assigning permanent speed distributions along the network, such as encountering a speed limit sign or entering/existing the freeway. Most of the Desired Speed Decisions for the study area were based on the posted speed limits. Reduced Speed Areas are used for assigning temporary speed distributions, such as for loop ramps and arterial turns. The speed distributions used for the study are included in **Table 2**.

Table 2 - Speed Distribution

Facility/Segment	Speed by Vehicle Types (mph)	Minimum (mph)	Maximum (mph)
I-95	Cars/Trucks - 60	52.8	67.2
Off Ramps	Cars/Trucks - 45	39.6	50.4
Loop Ramps	Cars/Trucks - 25	22.0	28.0
Ramp Terminal Left Turn/Channelized Right Turn	Cars/Trucks - 25	22.0	28.0
Arterial Right/Left Turns	Cars/Trucks – 10/15	8.8/13.2	11.2/16.8
All Arterial Entry Points	Cars/Trucks - 30	26.4	33.6

Note: The minimum and maximum speed ranges represent the average speed +/- 12%

5.3 Traffic Volume

Traffic volume data for SW 7th and SW 8th Street was obtained from previous data collection efforts by multiple sources for development of the existing year (2015) traffic volumes. The data sources include:

1. *I-95 Corridor Planning for Operational Deficiencies: US 1/SR 5 to Broward Boulevard, Design Traffic Technical Memorandum, FDOT, April 2016.*
2. *SR 90/SW 7th Street/SW 8th Street Corridor Study, Data Collection Memorandum, FDOT, February 2016.*
3. *SR 90/SW 7th Street/SW 8th Street from US 1 to SW 27th Avenue, Data Collection Supplement Traffic Data from Traffic Impact Studies, June 2016.*
4. *SR 90/SW 7th Street/SW 8th Street, Technical Memorandum No. 1, Existing Conditions, June 2015*.
5. *SR 90/SW 7th Street/SW 8th Street, Technical Memorandum No. 2, Preliminary Project Traffic Report, April 2015*.
6. *Florida Transportation Information DVD, 2015.*

Appendix A contains the data from the above sources that was applied in the existing traffic development process.

5.3.1 Peak Hour Traffic Development

Existing Year (2015) peak hour volumes for SW 7th Street and SW 8th Street were developed using 2015 turning movement counts (TMC) and growing 2013 TMCs where 2015 TMCs were not available. Existing Year 2015 peak hour TMCs (AM and PM peak periods) were gathered from the following sources:

- *I-95 Corridor Planning and Operational Deficiencies Technical Memorandum* (data source No. 1)
- *SR 90/SW 7th Street/SW 8th Street Corridor Study, Data Collection Memorandum* (data source No. 2). This report included 2-day and 3-day peak hour turning at five project intersections.

Year 2013 peak hour TMCs (AM and PM peak periods) were gathered from *SR 90/SW 7th Street/SW 8th Street, Technical Memorandum No. 1, Existing Conditions* (data source No. 4). The reported 2013 peak hour turning movement volumes were adjusted to 2015 peak hour volumes based on BEBR high growth for Miami-Dade County 2.0%. This high growth rate was applied, recognizing that the eastern end of the corridor has experienced substantial development in recent years.

Using the data gathered above, a common AM and PM peak hour was established for the I-95 terminal intersections at SW 8th Street and SW 7th Street. The common peak hour was determined by computing hourly volumes, in 15-minute increments, at all the terminal intersections and then identifying the one-hour period with the highest combined traffic volume entering the intersections. Following this procedure a common AM peak hour (8:00 AM to 9:00 AM) and PM peak hour (4:45 PM to 5:45 PM) was determined for the I-95 terminal intersections. This common peak hour was used for extracting peak hour volumes from other project intersections. This procedure recognizes that the I-95 terminal intersections are the most critical intersections within the study corridor and operations at the interchange has the most potential impacts on operations at other adjacent intersections. No seasonal adjustments were applied to the peak hour volumes in this procedure. This is consistent with standard practice as the FDOT's seasonal adjustment factors are developed for evaluating annual average daily traffic (AADT) and not peak hour volumes.

Peak hour volumes were checked for unbalanced flow between adjacent intersections (link entry volume vs. link exit volume). In performing this review, it is noted that the data collection did not include unsignalized intersections and driveways between the adjacent project intersections. Hence, some imbalance in traffic flows between project intersections is expected. Based on field observations, it was determined that traffic flows were unlikely to generate large imbalances along the north-south links between SW 7th Street and SW 8th Street, due to the limited number of connections between the adjacent project intersections. In the case of the east-west links, it was recognized that larger imbalances in traffic flows were reasonable as the east-west links generally had more connections between the adjacent project intersections. Based on these observations, the following tolerances were applied for balancing link volumes:

- A maximum difference of ±100 vehicles per hour was applied for balancing traffic flows on the north-south links between SW 8th Street and SW 7th Street.
- A maximum difference of ±200 vehicles per hour was applied for balancing traffic flows on the east-west links along SW 8th Street and SW 7th Street.

The resulting balanced AM and PM peak hour volumes for the project intersections along SW 7th Street and SW 8th Street are depicted in **Figure 4**.

Existing year AM and PM peak hour volumes along I-95 mainline and ramp systems were developed from the following sources:

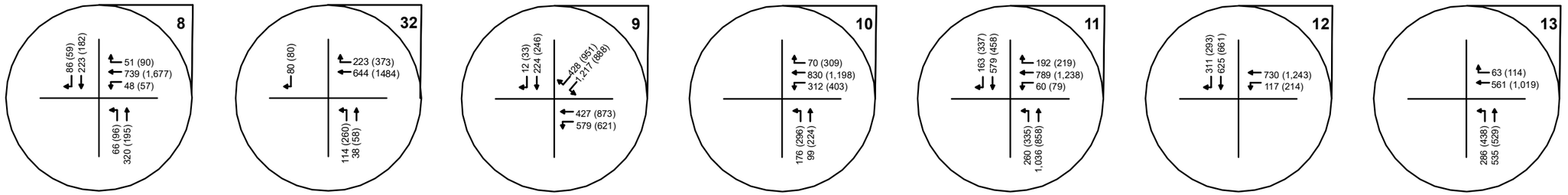
- *SR 90/SW 7th Street/SW 8th Street Corridor Study, Data Collection Memorandum* (data source No. 2). This data source included 72-hour machine counts along I-95 ramp systems. These 72-hour counts were adjusted to AADTs by applying applicable seasonal and axe correction factors.
- *Florida Transportation Information DVD, 2015*. Synopsis reports from the FTI DVD were used for gathering peak hour volumes.

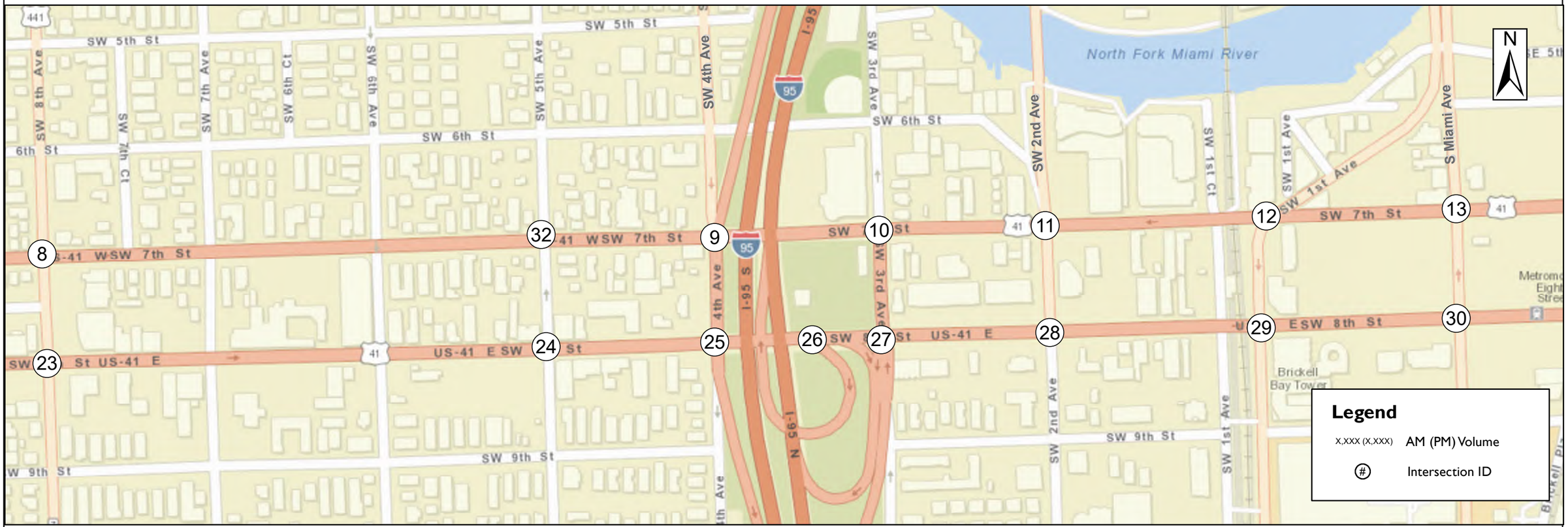
Overlapping data from the above sources were compared for reasonableness and outliers were discarded for traffic flow development. Peak hour volumes were adjusted for balanced flow throughout I-95

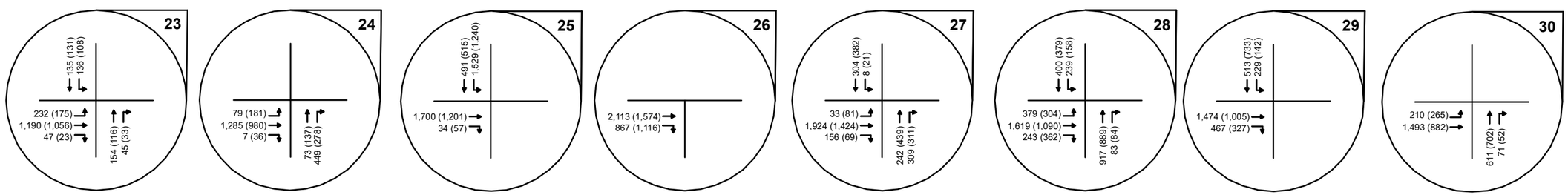
mainline in both northbound and southbound directions. Volume adjustments were made such that link entry volumes and exit volumes were equal. This process involved maintaining the ramp volumes that were developed under the arterial balancing process for SW 8th Street and SW 7th Street. Control points were also established along I-95 mainline south of SW 25th Road and north of NW 2nd Street. The FTI DVD reported volumes at these control points were held constant. The downtown distributor ramp systems were used as the primary balancing points for volume adjustments as limited traffic counts were available for these ramps. The resulting balanced AM and PM peak hour volumes along I-95 and the I-95 ramp systems are shown in **Figure 5**.

Peak period traffic movements were coded into the VISSIM models using static routes. In order to provide more realistic travel patterns and lane changing behaviors between the closely spaced intersections, VISUM was used to develop long static routes within the model networks. The balanced AM and PM peak hour traffic volumes were used to establish link targets and turning movement targets in VISUM to use with the TFlow Fuzzy O-D matrix estimation (ODME) procedure. The paths from VISUM provided long static routes for the entire study area.

Due to the congestion observed during both AM and PM peak-hour periods, multi-hour simulations having 15-minute intervals were developed for each peak period (**Appendix B**). While the peak-hour for each period may have the highest traffic volume, the hour(s) following the peak hour may experience more congestion than the peak hour. Therefore, the simulation duration should be long enough so that the traffic congestion is alleviated or at least shows signs of recovery.







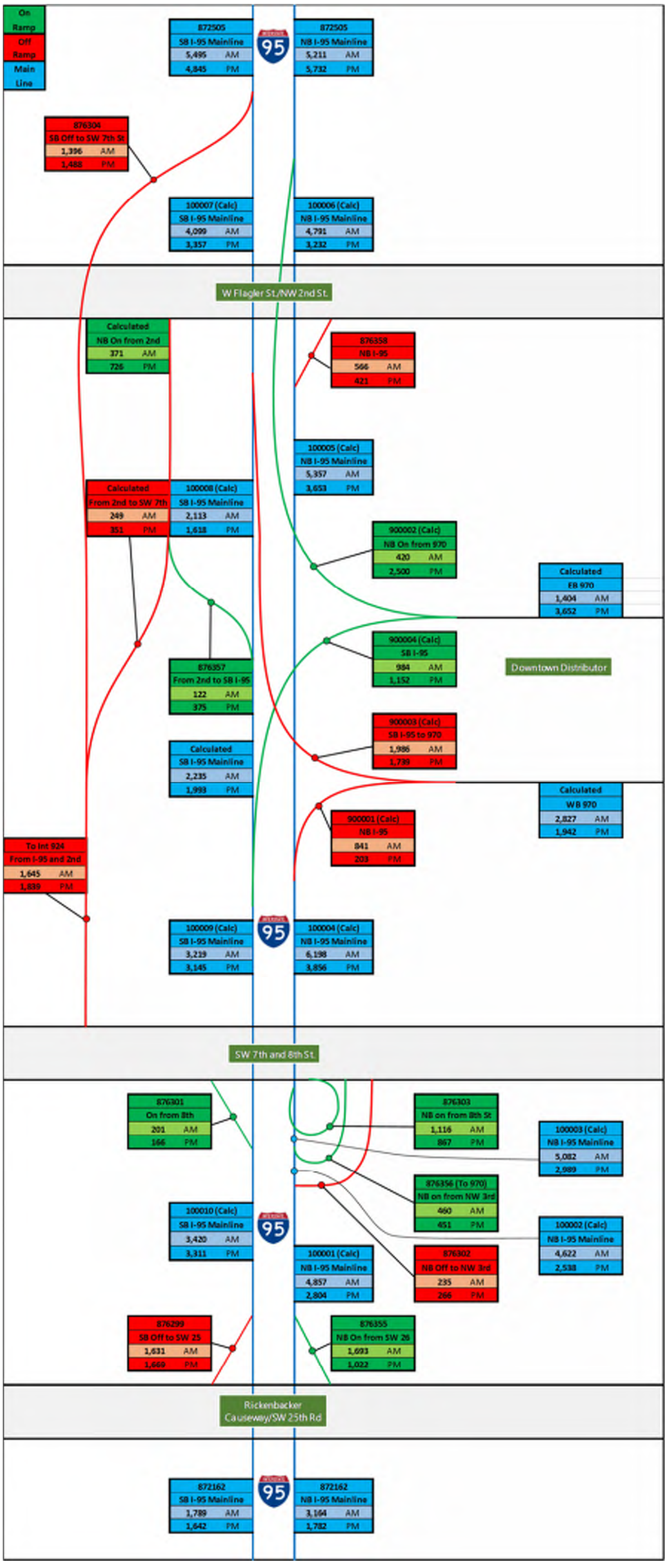
FDOT

SW 7th Street and SW 8th Street PD&E Study

Existing Year 2015 AM (PM) Peak Hour Volumes

Figure 4

Figure 5 – Existing 2015 I-95 Peak Hour Volumes



5.3.2 Vehicle Composition

Truck percentages for the peak-period analyses were determined by the observed daily truck percentages along the study corridor. The T_{24} (daily) percentages were based on an assessment of 5-year historical classification counts. Since the peak-period truck percentages are typically at a rate that is ½ of the daily percentages, both the AM and PM peak-periods used a truck percentage of 2% for freeway entry points of the study area. The truck percentage used at the arterial entry points was 3.5% based on the daily truck percentage if 7.5% along the arterial roadways.

Since the default vehicle models in VISSIM are based on European vehicles, The NorthAmericanDefault.inp file was used as a basis for the vehicle models in VISSIM. This base file contains revised vehicle fleet models/sizes that represent more accurately the vehicle fleet found in North America, based on 2005 car sales data. The passenger vehicle (cars, SUV, and light trucks) model distribution used in the VISSIM model is shown in **Table 3**.

Table 3 - Model Distribution for Passenger Vehicles

Name	Share (%)	Model	Length (ft.)
F-150	19.2	lttruck_ford_f150_2009	17.75
Silverado	15.1	lttruck_chevrolet_silverado_2008	21.89
Camry	13.5	car_toyota_camry_2006	15.57
Accord	12.9	car_honda_accord_2003	15.62
Explorer	10.6	suv_ford_explorer_2008	16.05
Quest	6.4	van_nissan_quest_1995	15.76
Altima	6.0	car_nissan_altima_2005	16.02
Cherokee	5.8	suv_jeep_grand_cherokee_2002	15.23
Voyager	5.5	van_plymouth_voyager_1999	16.01
Yukon	5.0	suv_gmc_yukon_xl_2008	17.83

The new vehicle model distribution for heavy vehicles was also taken into consideration for the model development. The heavy vehicle type was divided into both single-unit trucks (50%) and tractor semi-trailer trucks (50%), which is representative of the study area. The selection of the vehicles used for the HGV Model Distribution was based on the Comprehensive Truck Size and Weight study (FHWA, August, 2000). The heavy vehicle model distribution is shown in **Table 4**.

Table 4 - Model Distribution for Heavy Vehicles

Heavy Vehicle Class	Share (%)	Model (Tractor)	Model (Trailer)	Length (ft)
3-Axle Single Unit Truck	45.6	truck.v3d	-	33.51
4+-Axle Single Unit Truck	4.4	HGV_flatbed_truck.v3d	-	32.58
5-Axle Tractor Semi-trailer	35.4	HGV_wb50_tractor.v3d	HGV_wb50_trailer.v3d	55.00
4-Axle Tractor Semi-trailer	7.8	HGV_wb40_tractor.v3d	HGV_wb40_trailer.v3d	45.72
3-Axle tractor Semi-trailer	3.5	HGV_wb67d_tractor.v3d	HGV_wb67d_trailer.v3d	73.56
6-Axle Tractor Semi-trailer	3.3	HGV_wb65_tractor.v3d	HGV_wb65_trailer.v3d	73.58

5.4 Traffic Control Devices

Most of the intersecting roadways located within the study area are controlled by traffic signals and operate under actuated-coordinated signal operations that incorporate various time-of-day signal plans to enhance traffic operation for varying traffic levels throughout the day. The signal timing and phasing data for the AM and PM peak periods were provided by Miami-Dade County.

For the signalized intersections, field visits and Google Earth were used to determine/verify signal phasing information, such as protected/permitted left-turn operation, right-turn-on-red restrictions, phase overlaps, etc. A total of 14 signalized intersections were included in the Existing Conditions simulation analysis. Intersections included in the analysis are illustrated in **Table 5** and the signal timing information is provided in **Appendix C**.

The signalized intersections were modeled using detectors, signal heads, stop signs for right-turn-on-red (when necessary), and incorporated the Ring Barrier Controller (RBC). Synchro (Trafficware, Inc.) was initially used to develop the AM peak period RBC files. The RBC files were refined as necessary in VISSIM to accurately replicate the provided timing/phasing information (e.g., incorporating overlaps, pattern schedules, modified detector mapping, etc.). Unsignalized intersections were coded with stop signs and/or conflict areas. Permissive left turns also incorporated conflicts areas.

Table 5 – Intersection Control Information

Arterial Roadway	Intersecting Roadway	Jurisdiction	Control	Cycle Length (AM/PM)
SW 7th Street	S Miami Avenue	Miami-Dade County	Signalized	120/130
	1st Avenue	Miami-Dade County	Signalized	120/130
	2nd Avenue	Miami-Dade County	Signalized	120/130
	3rd Avenue	Miami-Dade County	Signalized	120/130
	4th Avenue	Miami-Dade County	Signalized	120/130
	5th Avenue	Miami-Dade County	Unsignalized	-/-
	8th Avenue	Miami-Dade County	Signalized	100/120
SW 8th Street	S Miami Avenue	Miami-Dade County	Signalized	120/130
	1st Avenue	Miami-Dade County	Signalized	120/130
	2nd Avenue	Miami-Dade County	Signalized	120/130
	3rd Avenue	Miami-Dade County	Signalized	120/130
	4th Avenue	Miami-Dade County	Signalized	120/130
	5th Avenue	Miami-Dade County	Signalized	120/130
	8th Avenue	Miami-Dade County	Signalized	100/120

5.5 Simulation Duration

Due to high traffic volume within the network during the peak periods, both the AM and PM peak periods had a simulation duration of 4.5 hours. This duration allows congestion to build-up prior to the peak and dissipate after the peak-hour.

The simulation duration consisted of network loading (seed) time, followed by four hours of peak period demand volume. The peak-hour in terms of volume was the second hour of the simulation, which was followed by two shoulder (post-peak) hours. An overview of the simulation duration is as follows:

- Seed Time: 0 – 1,800 simulation seconds to load volume into the network (output not collected)
- Hour 1 – Pre-Peak Hour: 1,800 – 5,400 simulation seconds of shoulder peak-hour volume

- Hour 2 – Peak-Hour: 5,400 – 9,000 simulation seconds - peak-hour volume
- Hour 3 – Post-Peak Hour: 9,000 – 12,600 simulation seconds of shoulder peak-hour volume
- Hour 4 – Post Peak Hour: 12,600 – 16,200 simulation seconds of shoulder peak-hour volume

5.6 Measures of Effectiveness

Simulation models provide numerical data to describe the operational performance of a simulation scenario. Several measures of effectiveness (MOEs) are available for comparison purposes, such as travel time, speed, queue length, etc. VISSIM's numerical output must be defined by the user prior to running the simulation. Common data collection elements of VISSIM include travel time sections, node evaluations, data collection points, and queue counters. The simulation output provides an assessment of the various components of the transportation facility, which includes the following:

- Corridors/Routes - vehicle trips, travel time, speed, etc.
- Interchange Ramps/Intersections - turning movement volume, delay time, queue length, etc.
- Overall Network – vehicle-miles of travel, travel time, delay time, latent volume, etc.

The main output for the simulation analysis relates to the operation of SW 7th and SW 8th Street, including the ramp terminal intersections. The primary VISSIM elements and MOEs considered for this project include the following:

- Travel Time Sections: Volume, travel time
- Node Evaluation: Volume, delay, and max queue length for the study area intersections

5.7 Required Number of Runs

VISSIM is a microscopic, discrete time-step, stochastic simulation model used to analyze a variety of transportation facilities and modes. The stochastic (random) nature of the simulation model means that the assigned vehicle types and driver types, route choice, and driving behavior attributes change based on the random seed values. Therefore, several simulation runs may be required to ensure that the median values reported statistically represent the reported value. The following equation was used to determine the required number of simulation runs for the Existing Conditions models:

$$n = \left\{ \frac{t_{\alpha/2} \times \sigma}{E \times \mu} \right\}^2$$

Where:

n = Required number of simulation runs

$t_{\alpha/2}$ = Critical value of the t-distribution at confidence level (1-α)

σ = standard deviation of sample size

E = allowable percentage error (5-10%)

μ = mean value of sample size

An initial sample of 10 simulation runs was performed for each peak period. The total network delay time was evaluated to determine if 10 runs were sufficient to statistically represent the simulation output. Based on the sample of 10 simulation runs, a confidence level of 95%, and an allowable error of 10%, the AM and PM peak hour scenarios required 4 and 1 runs, respectively, based on total delay time (**Table 6**). Therefore, the simulation results of the VISSIM models were based on the average output from the 10 simulation runs.

Table 6 - Required Number of Runs (Based on Total Delay Time)

Peak Period	μ (hours)	σ (hours)	# of Runs
AM	1422	144	3
PM	1414	120	2

6.0 CALIBRATION PROCESS

Simulation calibration is the process of performing model adjustments to better replicate the local driving behavior and traffic performance. The calibration process typically compares field data (volume, speed, travel time, congestion, etc.) to the simulation output. A model that is appropriately calibrated improves the model's ability to assess the future conditions of the study area. In this study, the calibration criteria from Federal Highway Administration's (FHWA) *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* report was used as a guide, which is provided in **Table 7**. All reasonable efforts were made to calibrate the VISSIM models to the proposed calibration criteria and targets.

Table 7 - Freeway Model Calibration Criteria

Criteria and Measures	Calibration Acceptance Targets
Hourly Flows, Model Versus Observed	
Individual Link Flows	
Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases
Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases
Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases
Sum of All Link Flows	Within 5% of sum of all link counts
GEH Statistic < 5 for Individual Link Flows	> 85% of cases
GEH Statistic for Sum of All Link Flows	GEH < 5 for sum of all link counts
Travel Times, Model Versus Observed	
Journey Times, Network	
Within 15% (or 1 min, if higher)	> 85% of cases
Visual Audits	
Individual Link Speeds	
Visually Acceptable Speed-Flow Relationship	To analyst's satisfaction
Bottlenecks	
Visually Acceptable Queuing	To analyst's satisfaction

Source: "Freeway System Operational Assessment," *Paramics Calibration and Validation Guidelines* (Draft), Technical Report I-33, Wisconsin DOT, District 2, June 2002.

The formula for the Geoffrey E. Havers (GEH) statistic is as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/2}}$$

Where:

E = Model estimated volume
V = Field or input volume

6.1 VISSIM Calibration Parameters

The major VISSIM parameters used in the calibration process were mostly related to arterial facilities. These include car-following and lane change models, within the driving behavior parameter set. Three parameters exist for the Wiedemann 74 (arterial car-following model). Based on previous studies, as well as adequately reflecting the existing observed operating conditions along SW 7th and SW 8th Street, some of the car following and lane change parameters were modified. Five driving behavior types were incorporated into the VISSIM models based on the roadway geometry as described in Section 5.1. These include Urban (arterial links), Urban Saturated (arterial links), Basic Freeway, Merge/Diverge Freeway, and Weave Freeway. The parameter sets that comprise these driving behaviors are summarized in **Table 8** through **Table 10**. The calibration parameters were developed as part of an iterative process and the final parameters were incorporated into both the AM and PM peak period models.

Table 8 - VISSIM Arterial Car-Following Calibration Parameters

Wiedemann 74 Model Parameters	Defaults	Urban	Urban Saturated
Average Standstill Distance (ft)	6.56	6.56	6.56
Additive Part of Safety Distance	2.00	2.00	**1.00**
Multiplicative Part of Safety Distance	3.00	3.00	**2.00**

Table 9 - VISSIM Car-Following Calibration Parameters

Wiedemann 99 Model Parameters	Defaults	Basic Freeway	Merge / Diverge Freeway	Weave Freeway
CC0 (Standstill Distance) (ft)	4.92	4.92	4.92	4.92
CC1 (Headway Time) (s)	0.90	***1.20***	***1.20***	***1.20***
CC2 ('Following' Variation) (ft)	13.12	13.12	13.12	13.12
CC3 (Thresh. for Entering Following)	-8.00	-8.00	-8.00	-8.00
CC4 (Negative 'Following' Threshold)	-0.35	-0.35	-0.35	-0.35
CC5 (Positive 'Following' Threshold)	0.35	0.35	0.35	0.35
CC6 (Speed depend. of Oscillation)	11.44	11.44	11.44	11.44
CC7 (Oscillation Acceleration) (ft/s^2)	0.82	0.82	0.82	0.82
CC8 (Standstill Acceleration) (ft/s^2)	11.48	11.48	11.48	11.48
CC9 (Acceleration at 50 mph) (ft/s^2)	4.92	4.92	4.92	4.92

Table 10 - VISSIM Lane Change Calibration Parameters

Lane Change Parameters	Defaults	Urban	Urban Saturated	Basic Freeway	Merge / Diverge Freeway	Weave Freeway
Max Decel. (own) (ft/s^2)	-13.12	-13.12	-13.12	-13.12	-13.12	-13.12
Max Decel. (trailing) (ft/s^2)	-9.84	-9.84	-9.84	-9.84	-9.84	-9.84
-1 fps^2 per dist.(own) (ft)	200 Freeway 100 Arterial	100	100	200	200	200
-1 fps^2 per dist.(trailing) (ft)	200 Freeway 100 Arterial	100	100	200	200	200
Accepted Decel.(own) (ft/s^2)	-3.28	-3.28	-3.28	-3.28	-3.28	-3.28
Accepted Decel.(trailing) (ft/s^2)	-1.64 Freeway -3.28 Arterial	-3.28	-3.28	-1.64	-1.64	-1.64
Wait time before diffusion (sec)	60	**120**	**120**	60	60	60
Safety distance reduction factor	0.60	**0.40**	**0.20**	0.60	***0.40***	***0.20***
Max. Decel. For coop. braking (ft/s^2)	-9.84	**-25.00**	**-25.00**	***-25.00***	***-25.00***	***-25.00***
Advanced Merging	On	On	On	On	On	On
Cooperative Lane Change	Off	***On***	***On***	***On***	***On***	***On***

An additional driving behavior was established (Urban Saturated) to replicate the traffic operations on the arterials where significant lane changes were observed. This driving behavior used a lower safety distance reduction factor (0.2 vs. 0.6) and decreased the additive and multiplicative components of the safety distance by 1.0, to better replicate the traffic flow along the arterials. This driving behavior was used on the eastbound and southbound approach links of SW 8th Street and 4th Avenue, the eastbound and northbound approach links of 8th Street and 3rd Avenue, and the westbound approach links of SW 7th Street and 4th Avenue.

Another element that significantly affects freeway operations relates to the Lane Change Distance for connectors at diverge points (off-ramps) and lane drops. The default distance when coding a connector in VISSIM is 656.2 feet. For freeway operations, this distance was found to be too short to provide the appropriate number of lane changes. To assist in the calibration of traffic operations for the existing conditions, the Lane Change Distance was increased to at least 2,500 feet per lane change for freeway links and 1,500 feet per lane change for arterial links. Additionally, the Lane Change Distance was also adjusted on arterial connectors during the calibration process to better replicate existing conditions.

6.2 Calibration Results

The calibration effort of this study primarily focused on replicating the volume data, queue data, and field observations to replicate the existing congestion/bottlenecks along SW 7th and SW 8th Street. Numerical results are provided in hourly intervals as well as total simulation time. The following sections discuss the calibration effort as it relates to the primary calibration criteria. In addition, **Appendix D** contains the SW 7th and SW 8th Street link volume and calibration information.

6.2.1 Link Flow

For individual link flows, the four hours of each peak period were evaluated for the SW 7th and SW 8th Street segments. Based on the simulation output, three of the four AM period hours met the individual link criteria and all of the PM peak period hours met the individual link criteria. For the AM peak period, three of the four hours (Hours 1, 2, and 4) met the criteria for 100% of the links (**Table 11**). For the AM peak period, the Hour 3 links flows met the +/- 15% criteria at a rate of 70% for links having a volume between 700 and 2,700 vehicles per hour. The primary reason for the difference between the input volume and the simulation volume relates to congestion along SW 7th and SW 8th Street stemming from the ramp terminals in Hours 1 and 2, causing the simulated volume to fall short of the demand. During the following two hours, the congestion dissipates and the previously unmet demand is processed, causing the simulated volume to exceed the hourly demand. Therefore, the simulated volume in the first two hours is typically lower that the input volume while the simulation volume in the last two hours is higher since it is clearing the congestion out of the network.

The PM peak period met the individual link criteria for the full duration of the four-hour simulation, as shown in **Table 11**.

Table 11 - Individual Link Flows (SW 7th and SW 8th Street)

Peak Hour	Simulation Hour	Flow <700 vph (+/- 100)	700< Flow <2,700 vph (+/- 15%)	Flow >2,700 vph (+/- 400)
AM	1	100%	100%	-
	2	100%	100%	-
	3	100%	70%	-
	4	100%	100%	-
PM	1	-	100%	-
	2	-	100%	-
	3	-	100%	-
	4	-	100%	-

The link flows for all of the SW 7th and SW 8th Street links were added together and compared to the sum of all link demand volumes. Both the AM and PM peak period models followed the same trend. For the first two hours of the simulation, the simulated volume was less than the input volume while the second two hours of the simulation reported higher simulated volume than the input volume (**Table 12**). These occurrences are due to volume building and subsiding within the peak period. If a subsequent hour has more traffic than the previous hour, the reported volume may be lower since the volume from the previous hour does not complete its trip within the same hour. The opposite holds true when subsequent hours have less volume than the previous hour(s), especially if congested conditions occurred in the previous hour. For the AM peak period, Hours 1 – 4 reported link flow differences of -7.2% to 11.9% with an overall difference of -0.6%. For the PM peak period, Hours 1 – 4 reported link flow difference of -4.7% to 7.6% with an overall difference of 0.4%. As previously discussed, Hour 3 and 4 are higher since it continued to clear the congestion caused in Hours 1 and 2.

Table 12 - Sum of Link Flows (SW 7th and SW 8th Street)

Peak Hour	Hour	Percent Difference
AM	1	-2.2%
	2	-7.2%
	3	11.9%
	4	4.1%
	Total	0.6%
PM	1	-3.1%
	2	-4.7%
	3	7.6%
	4	3.9%
	Total	0.4%

The GEH statistic is a formula used to compare two sets of traffic volumes. A GEH value of less than 5 is considered a good match between the hourly input volumes and the modeled volumes. Based on the simulation output, the four hours of the AM peak period had GEH compliant percentages of 79.0% to 100% (**Table 12**). The lower compliant percentage of Hour 3 was primarily due to the fact that it continued to clear the congestion caused in Hours 1 and 2 which caused the GEH statistic to be greater than 5

primarily in the westbound direction on SW 7th Street from 4th Avenue to 2nd Avenue. Based on the simulation output, the four hours of the PM peak period had GEH compliant percentages of 100%.

Table 13 - GEH < 5 for Individual Link Flows (SW 7th and SW 8th Street)

Peak Hour	Hour	Percent Compliant
AM	1	100.0%
	2	100.0%
	3	79.0%
	4	100.0%
PM	1	100.0%
	2	100.0%
	3	100.0%
	4	100.0%

6.2.2 Travel Time/Speed Data

Data collection along SW 7th and SW 8th Street was limited due to construction within the project area. A Data Collection Memorandum, which was completed February 2016, was used for calibration when data was available. Due to ongoing construction east of SW 1st Avenue, a lane closure is in effect for both directions of SW 7th Street and SW 8th Street between SW 1st Avenue and Brickell Avenue. All lanes along SW 7th Street and SW 8th Street were initially anticipated to be opened by the end of January 2016 however, an extension was granted allowing the lanes to remain closed until the end of March 2016. A supplemental data collection effort was attempted but construction was still active by June 2016. Therefore there is no travel time data available for SW 7th and SW 8th Street.

The same February Data Collection Memorandum collected travel time data on I-95. The travel time runs were conducted on January 19 and 20, 2016 during the AM and PM peak periods. The northbound travel time runs started at the SW 25th Road on-ramp (one interchange to the south of SW 7th and SW 8th Street) and ended at the NW 2nd Street off-ramp. The southbound runs performed the opposite movement by starting at the NW 2nd Street on ramp and ending at the SW 25th Road off- ramp. Only one run per hour was conducted, limited the sample size of the travel time data. Also by having the southbound runs enter from the NW 2nd Street on ramp, the southbound SW 7th and SW 8th Street CD Road exit driving behavior was not captured. Due to the limited study area covered by the travel time runs conducted in the February Data Collection Memorandum, Regional Integrated Transportation Information System (RITIS) data was obtained and processed.

The RITIS data for the project area was analyzed for the same days as the travel time runs and extended from the southern SR 836 ramps to south of SW 25th Road. Based on the RITIS hourly speed data, the AM peak period in the northbound direction experienced operating speed ranging from 45-60 mph throughout the project area (**Figure 6**). In the southbound direction, congestion caused by queueing from the Downtown Distributor slows I-95 speeds to around 20 mph, while travel speed downstream of the Downton Distribution ranged from 50-65 mph (**Figure 7**). It should be noted that the SW 7th and SW 8th Street Collector-Distributor (C-D) Road exit is approximately 500 feet north of the Downtown Distributor exit.

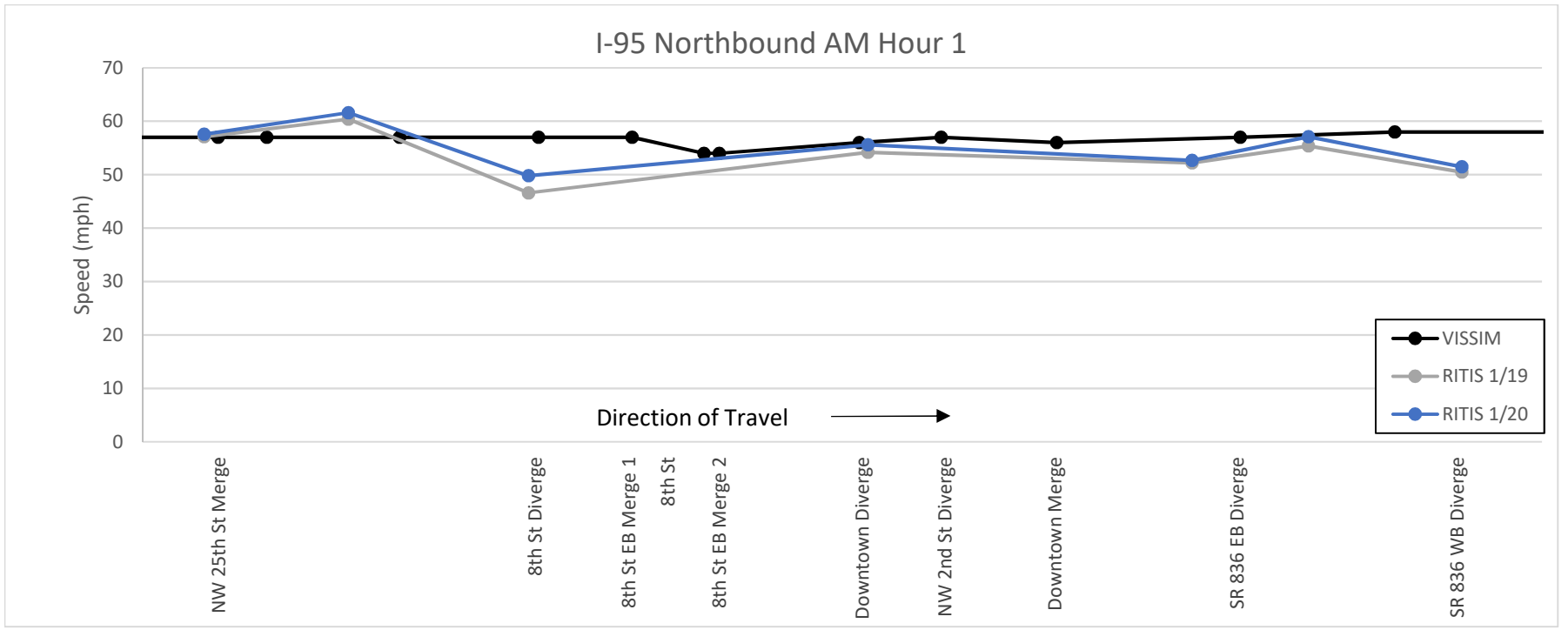
During the PM peak period, the northbound direction suffered significantly due to congestion outside (downstream) of the study area. Travel speeds ranged from 10 to approximately 40 mph in Hours 1-3 (**Figure 8**). The southbound direction traveled at higher travel speeds overall but was still impacted by

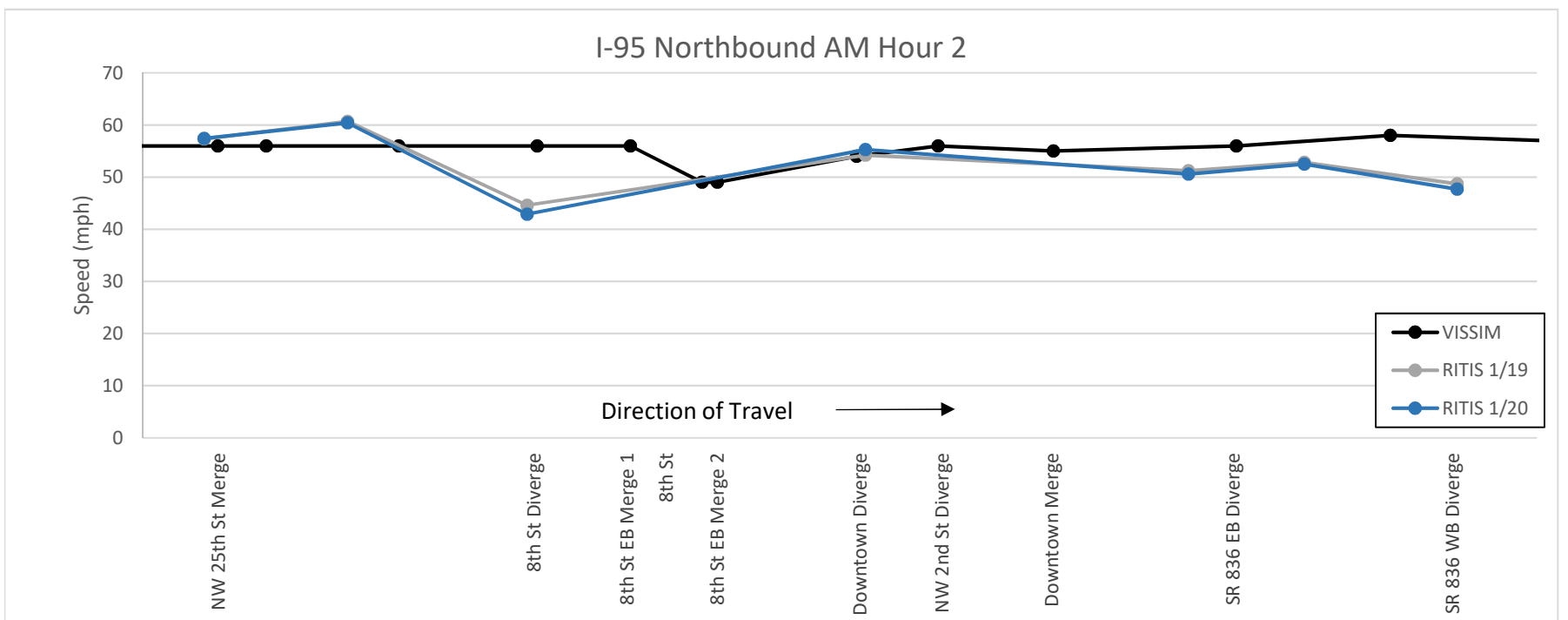
congestion outside of the study area (**Figure 9**). The termination of I-95 at US 1 caused queues impacting speed as far north as the Downtown Distributor merge area.

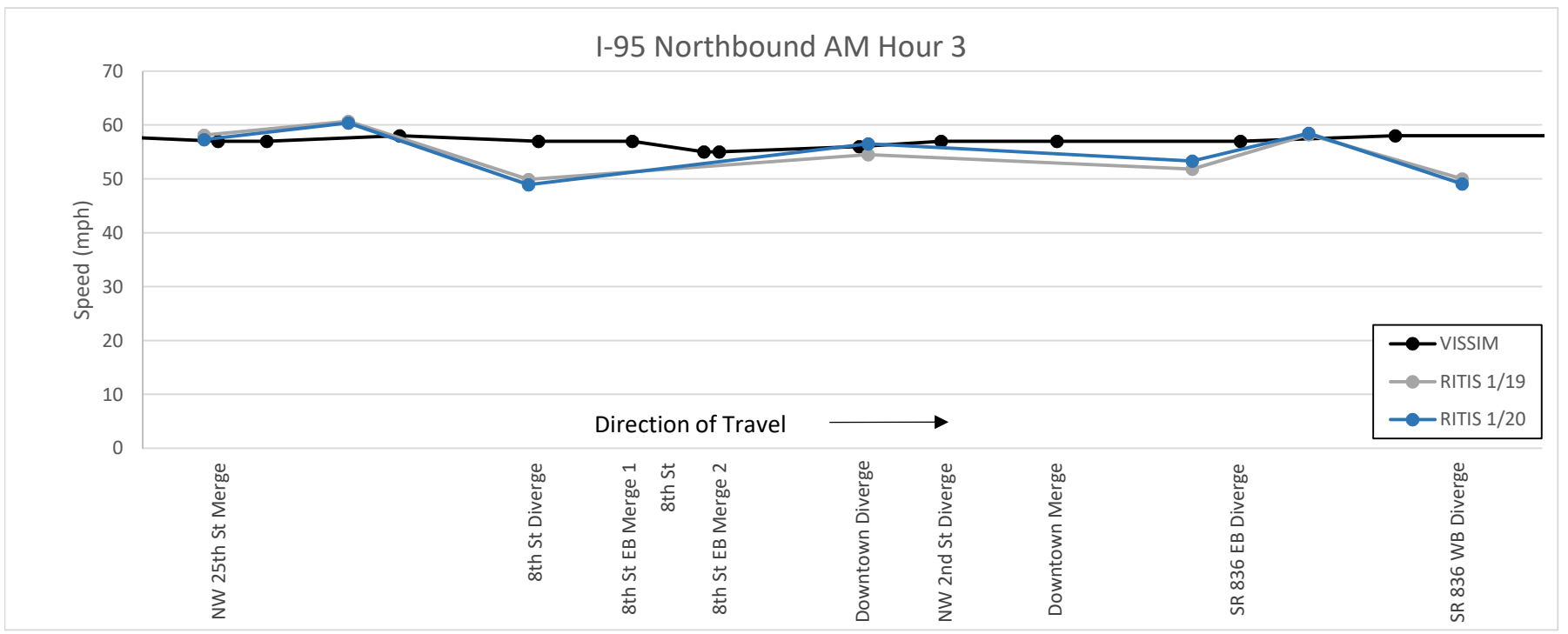
The travel speed reported by VISSIM typically ranged between 50 and 60 mph for both peak periods and both directions of I-95. However, during the PM peak southbound I-95 travel speed drops to below 40 mph in Hour 2 and 3 due to congestion at the SW 7th Street C-D Road diverge.

The extensive congestion outside of the study area makes it difficult to perform travel time/speed calibration for the study area. Since the project focuses on the performance of SW 7th and SW 8th Street, it was determined that the calibration effort would not include matching the congestion on I-95, which is caused by issues outside of the project area.

Figure 6 - I-95 Northbound Speed Profile: AM Peak Period







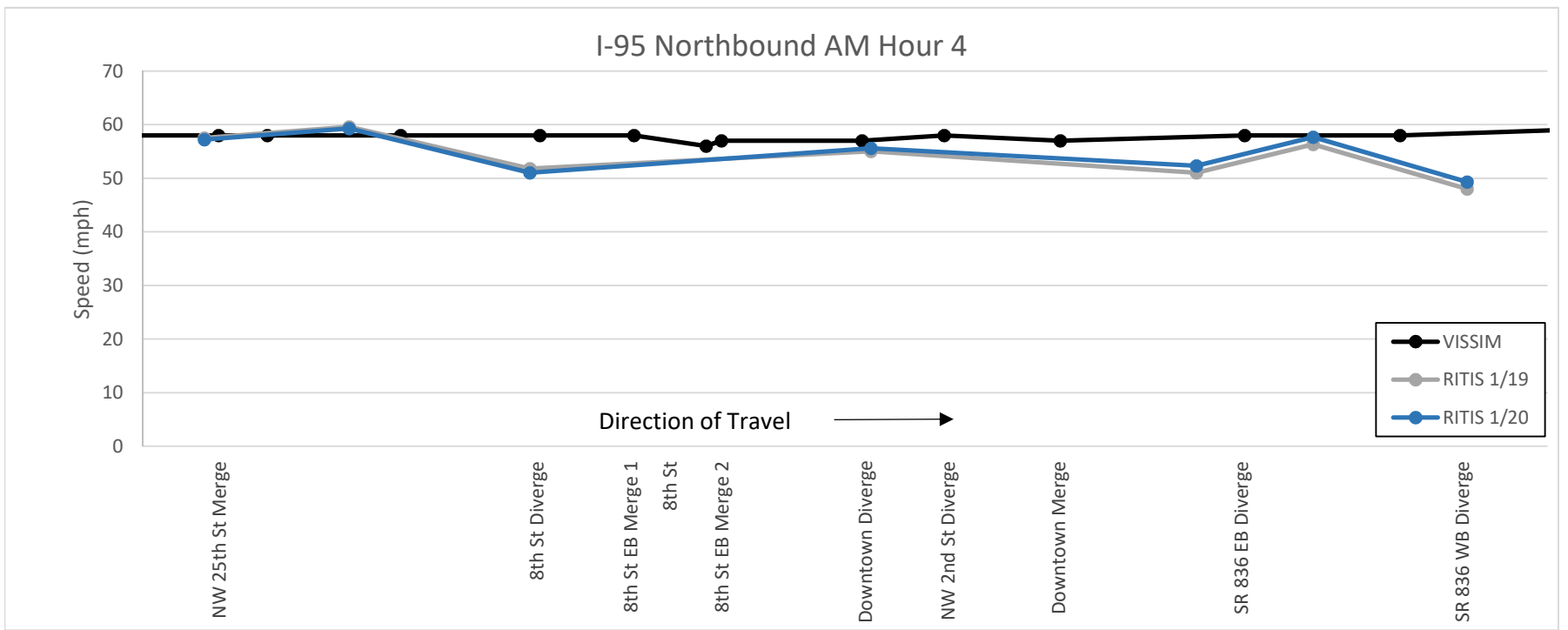
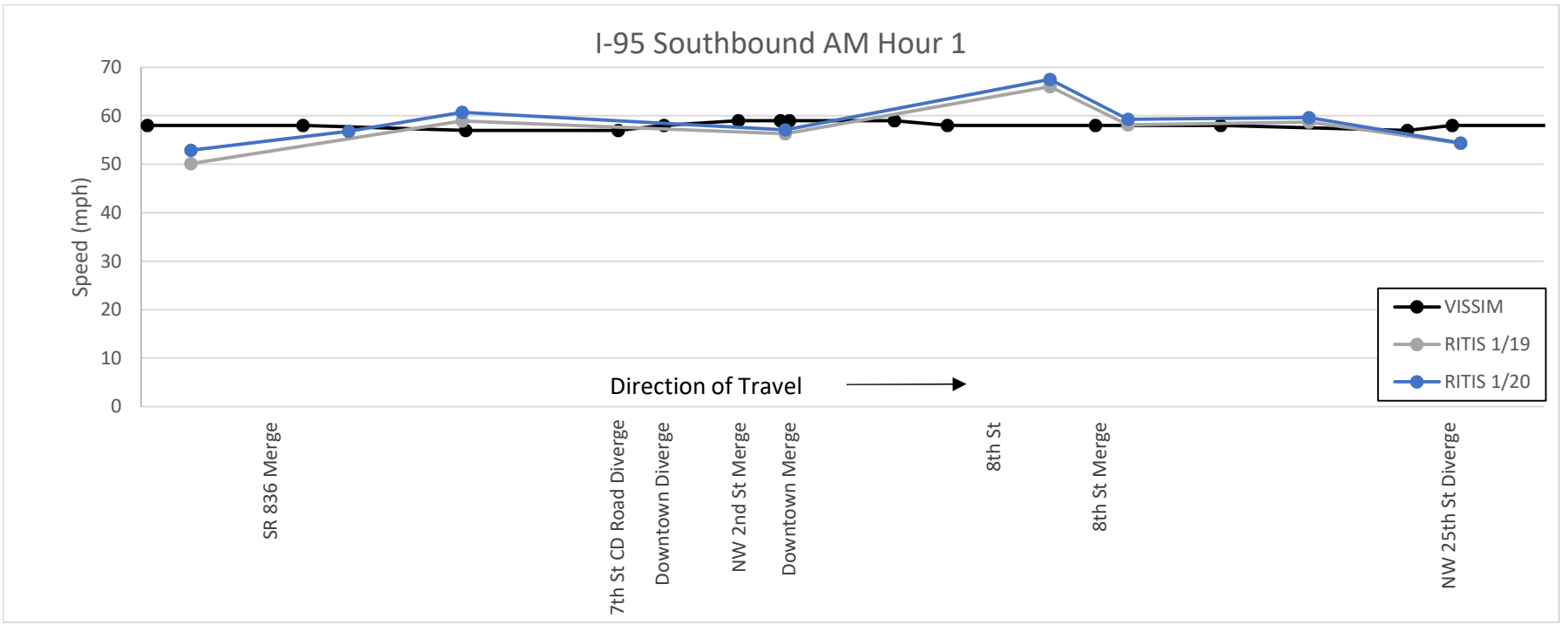
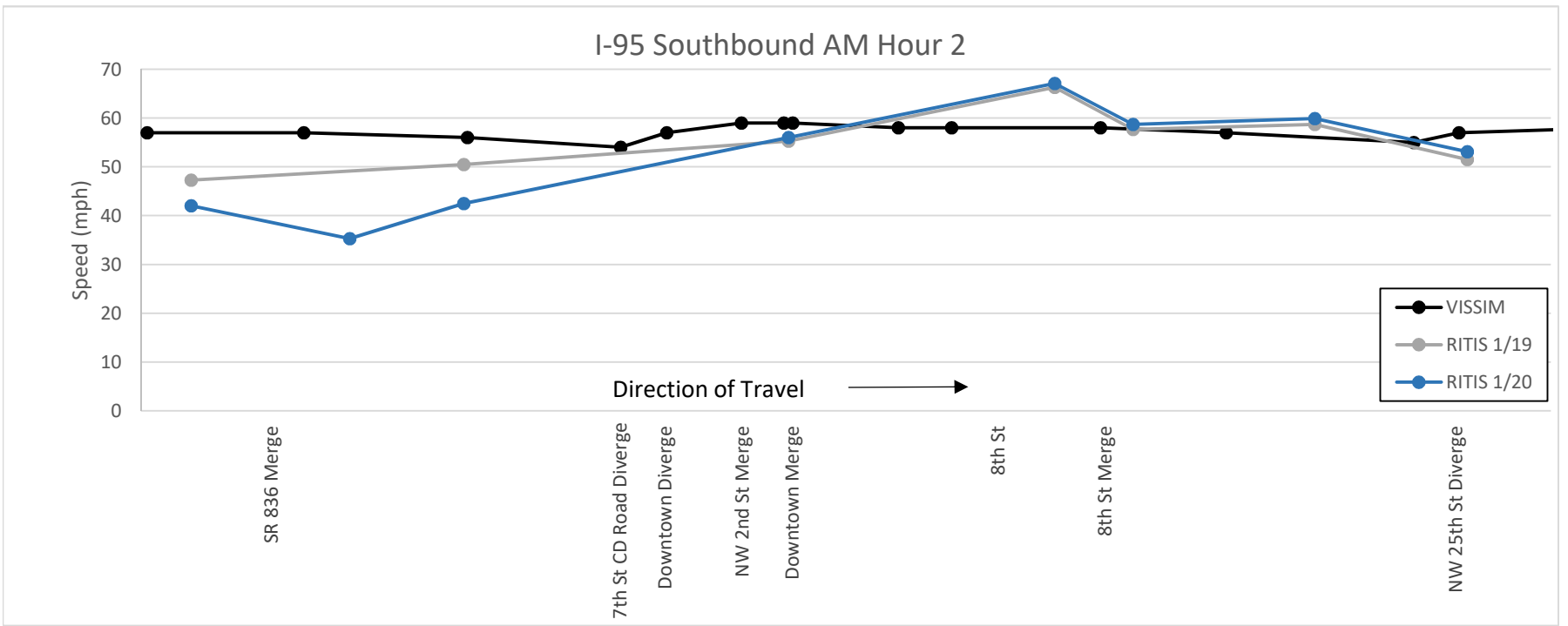
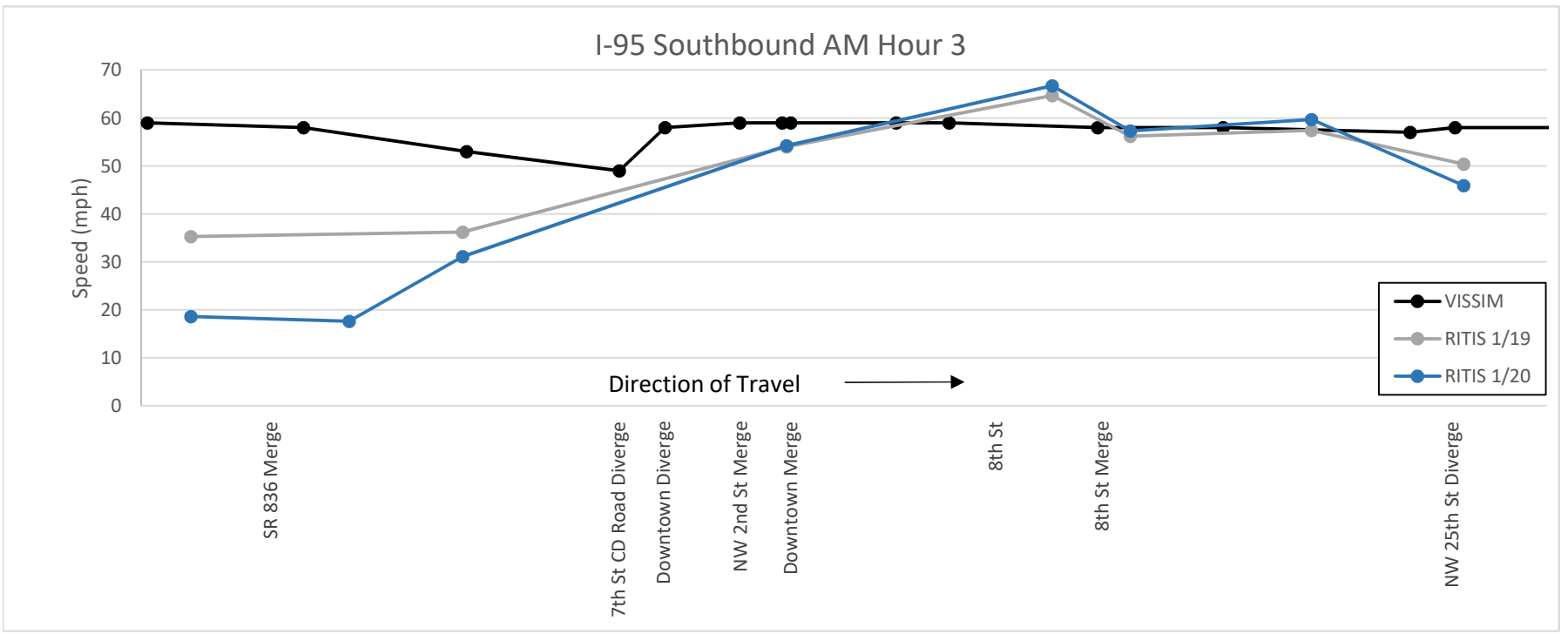


Figure 7 - I-95 Southbound Speed Profile: AM Peak Period







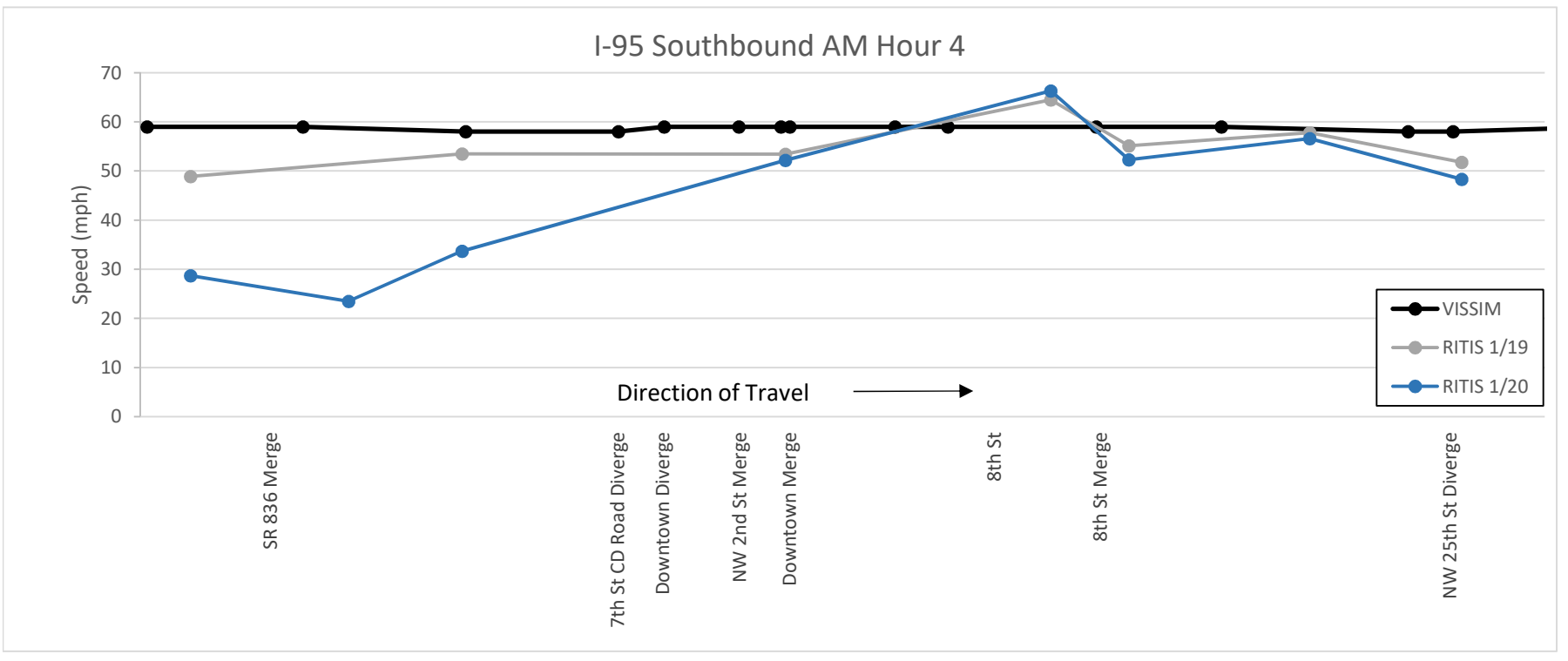
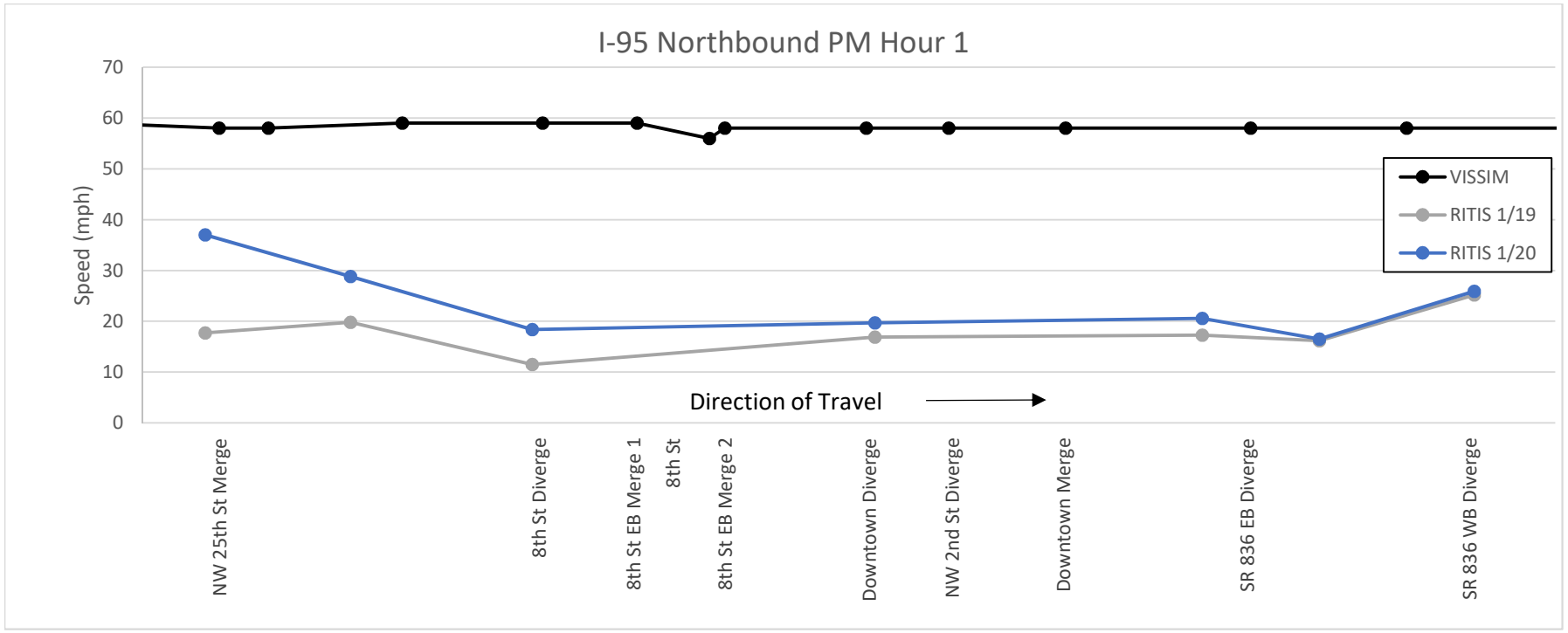
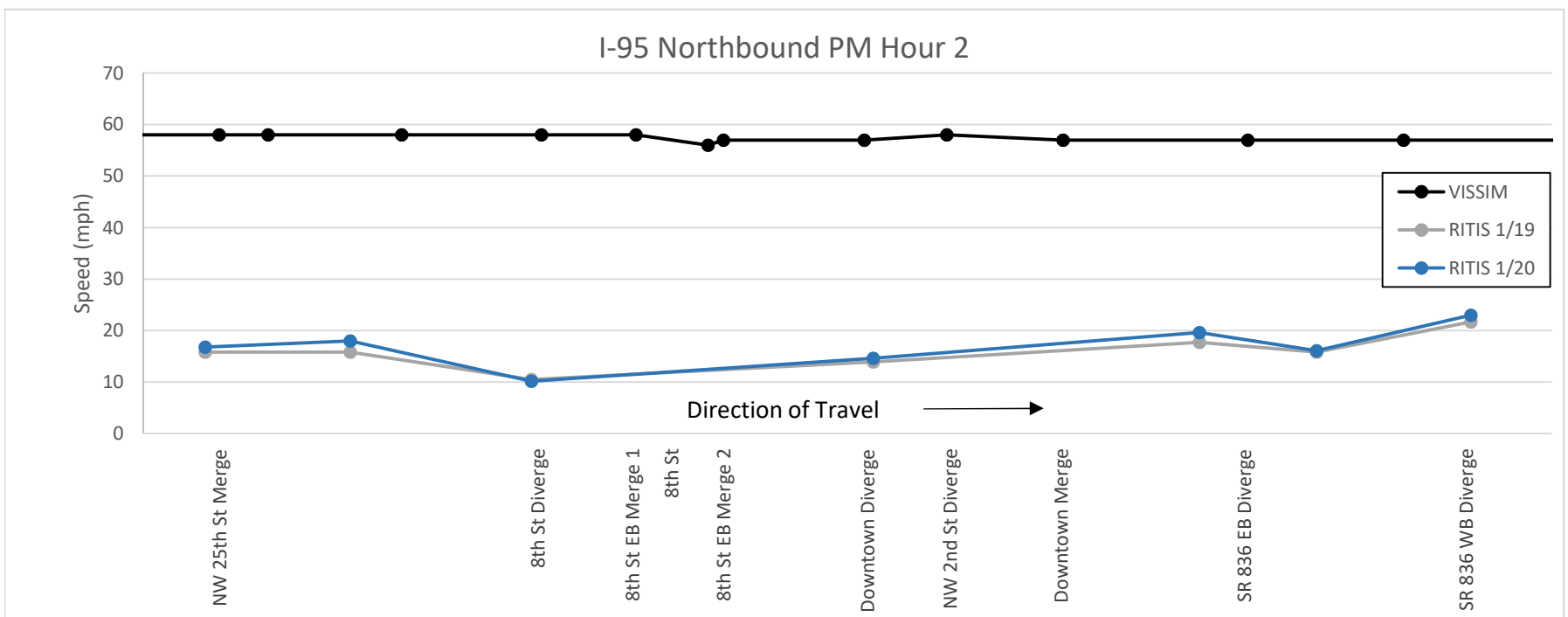
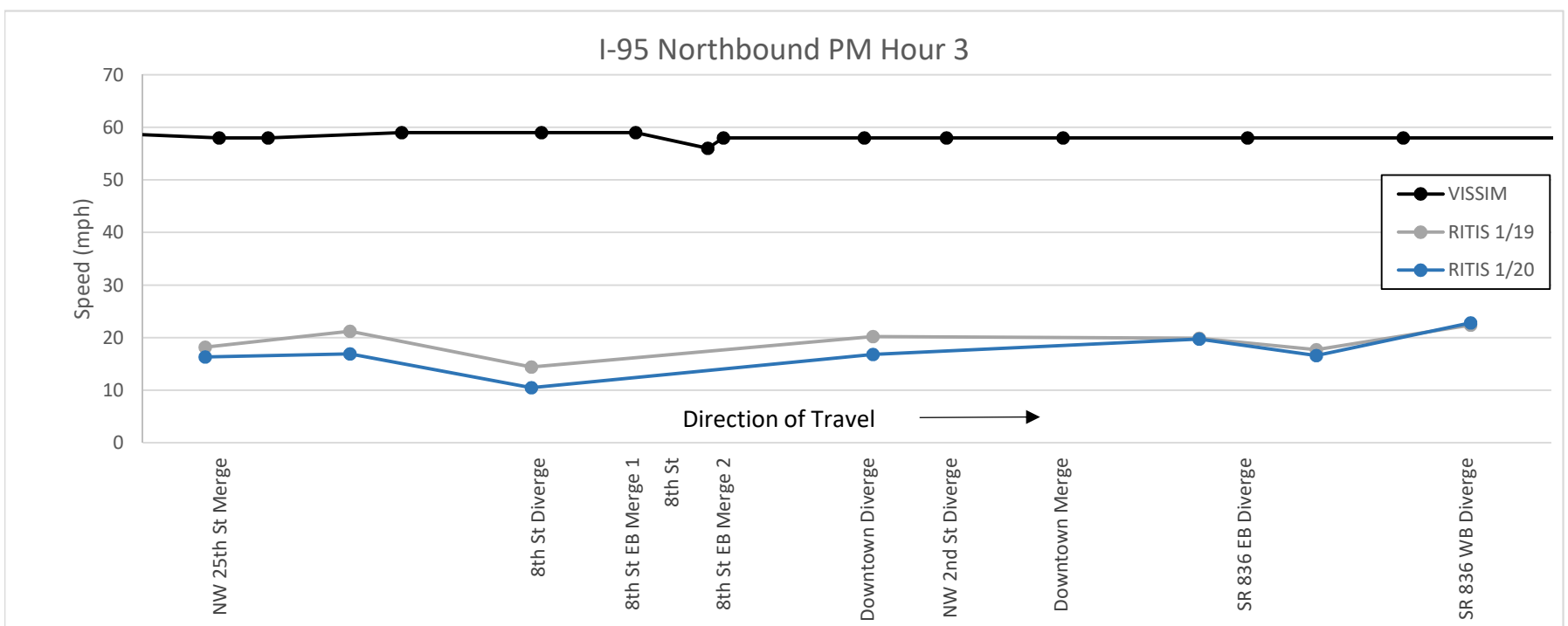


Figure 8 - I-95 Northbound Speed Profile: PM Peak Period







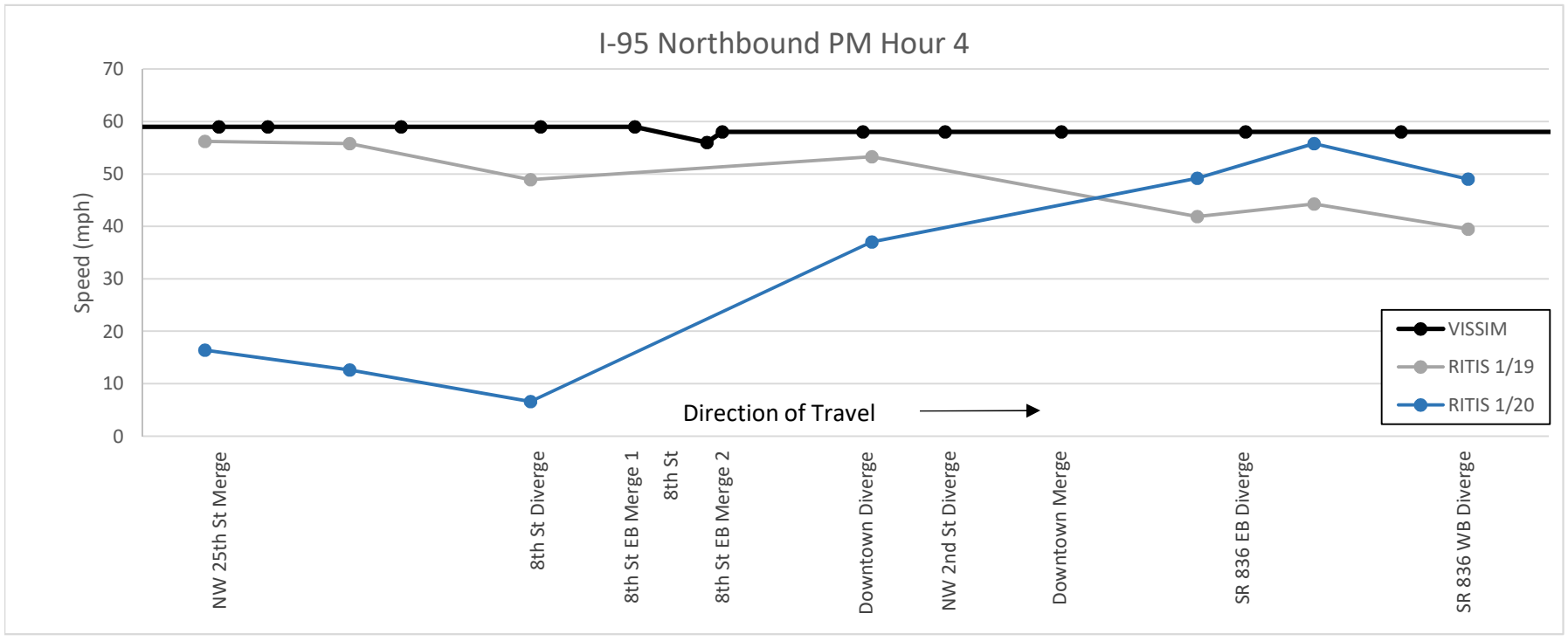
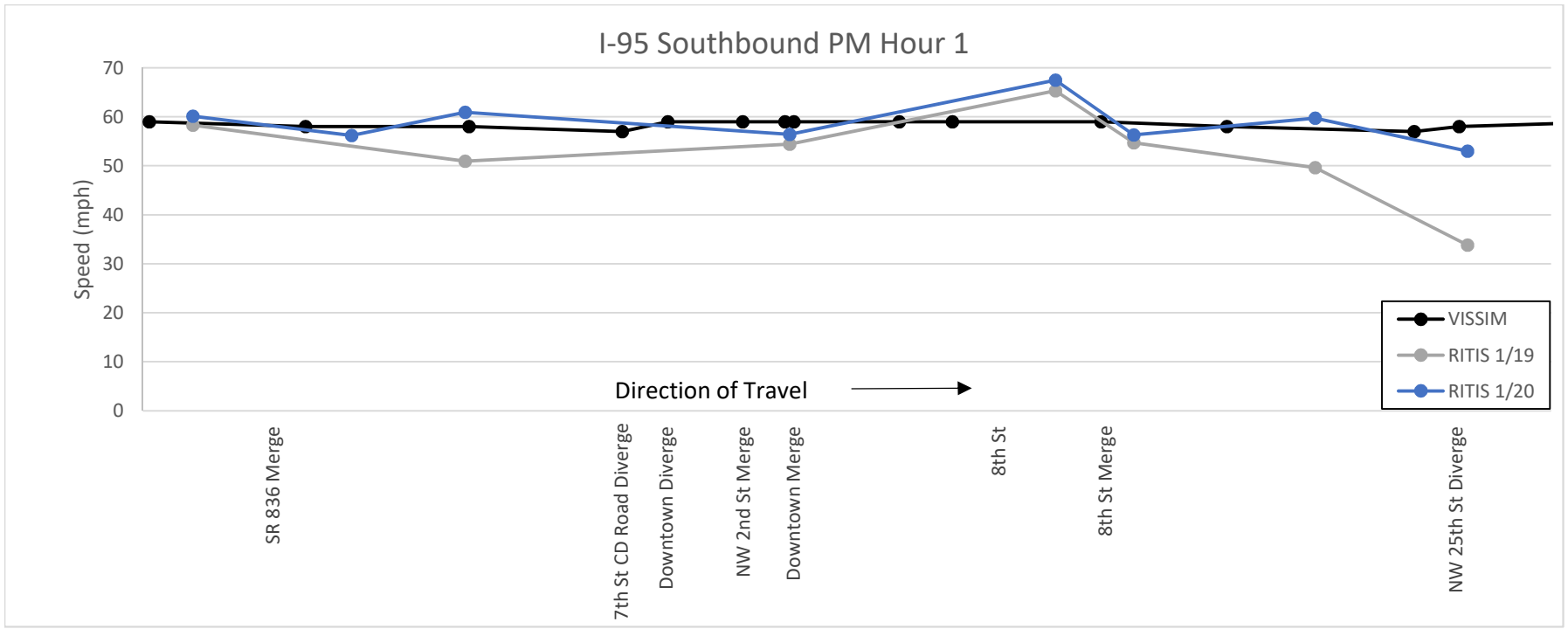
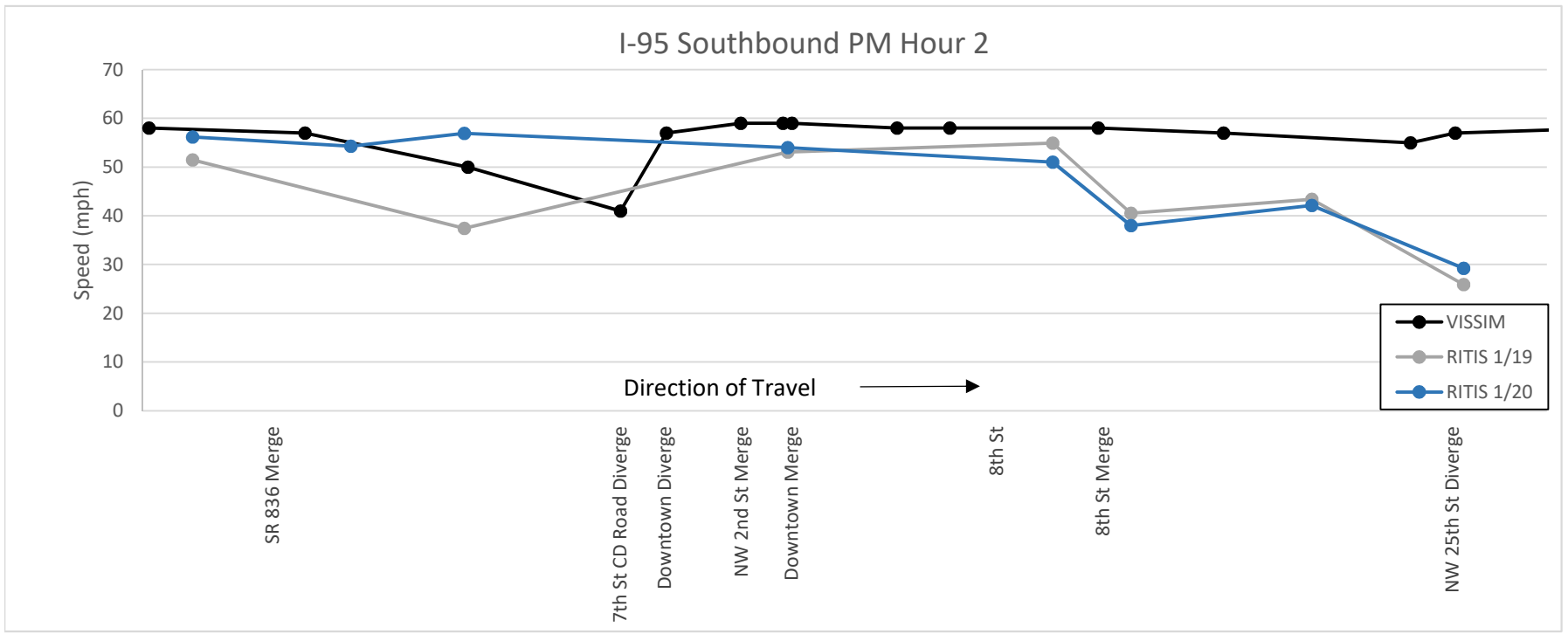
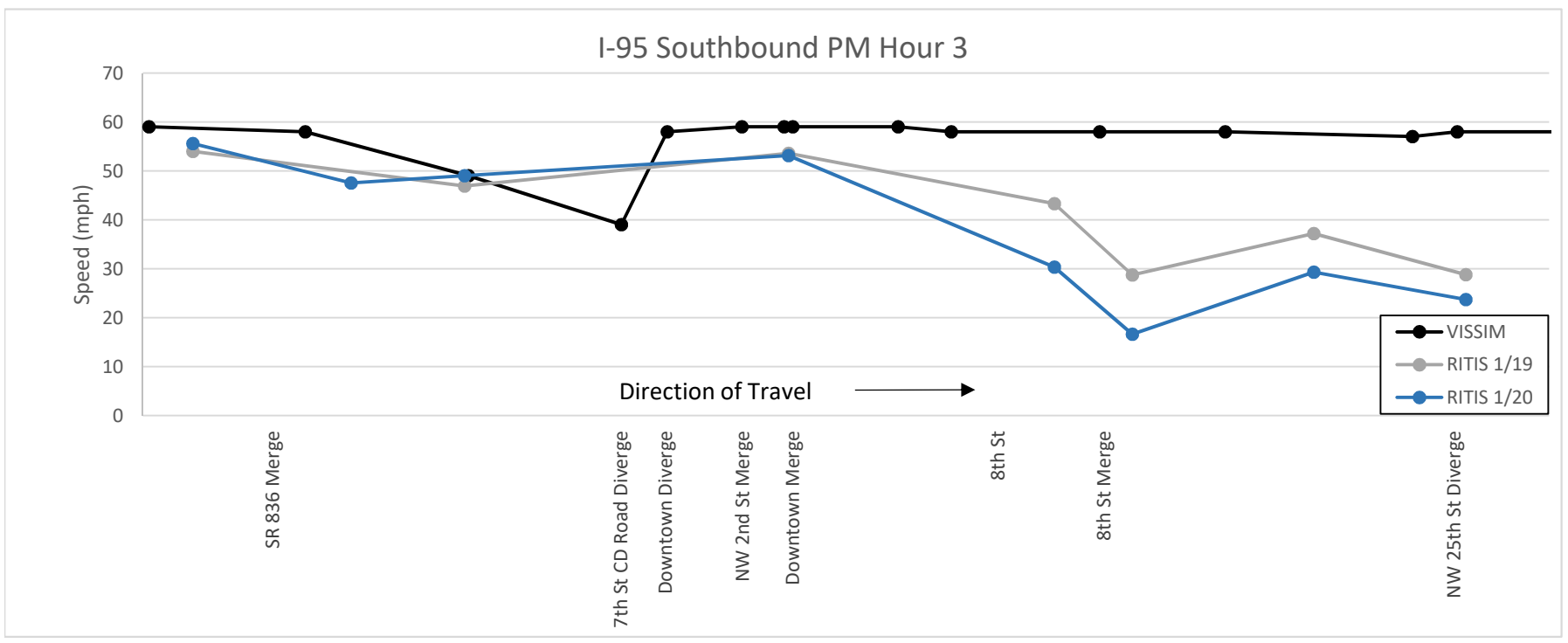
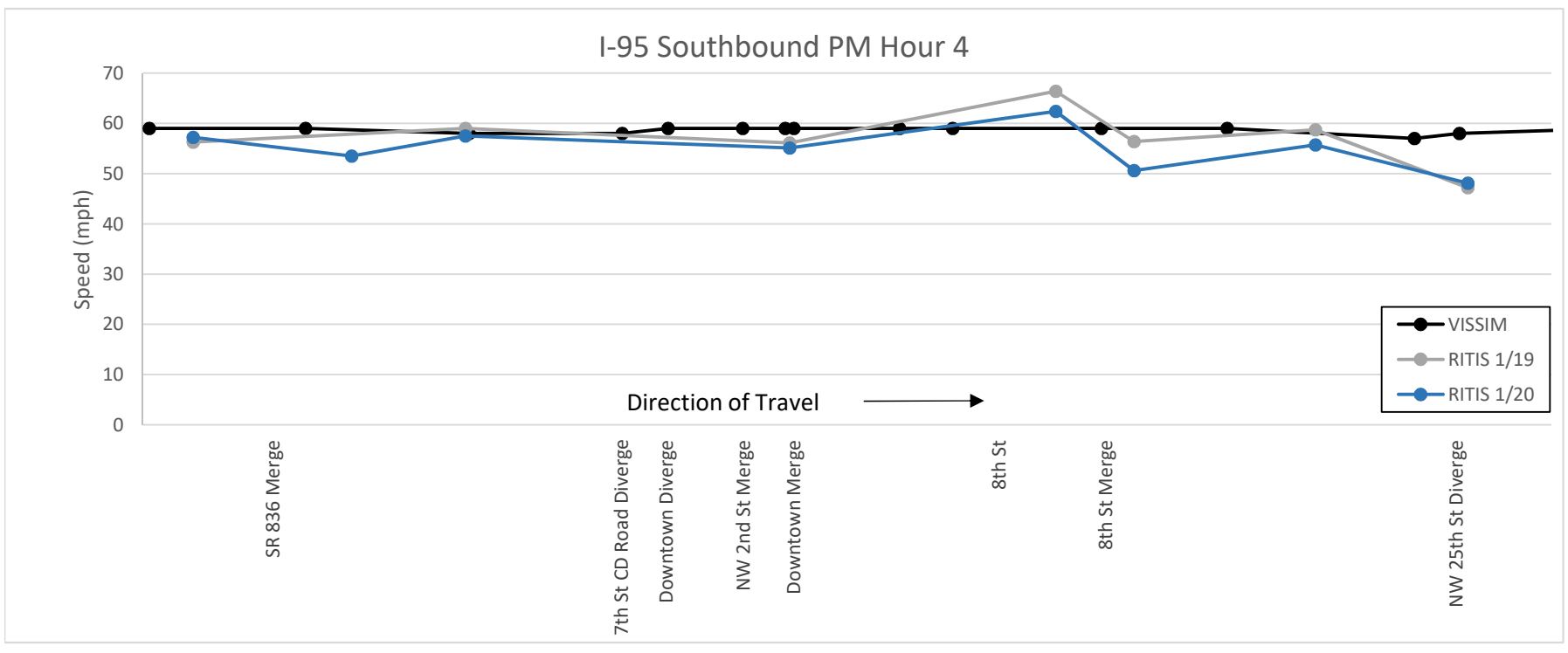


Figure 9 - I-95 Southbound Speed Profile: PM Peak Period









6.2.3 Queue Lengths

A queue length study was conducted as part of the Data Collection Memorandum (February 2016). Queue lengths were observed for one day during the three-hour weekday peak periods from 7:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m. The queue lengths were reported for each traffic signal cycle and were collected on typical weekdays in September and October of 2015. Queue length studies were performed for critical movements for the ramp terminals west of I-95. Data collection for intersections east of I-95 were not able to be collected due to construction east of SW 1st Avenue.

Queue length studies were performed at the following intersections:

- WB approach at SW 7th Street/SW 4th Avenue
- EB approach at SW 8th Street/SW 4th Avenue
- SB approach at SW 8th Street/SW 4th Avenue
- SB I-95 off-ramp/4th Avenue at SW 7th Street

Table 14 and **Table 15** display the comparison of the observed max queue to the modeled maximum queue for the AM and PM peak hour, respectively. The observed maximum queue was measured to the end of the block if the queue extended to the next intersection. The modeled maximum queue was adjusted from the node output because the queue lengths measured by the node in VISSIM extends to the upstream intersections signal head. Therefore the length of the intersection upstream from each approach was subtracted from the node output queue length. The node output is contained in **Appendix E.**

All of the approaches with observed queues meet within a 20% range of the observed maximum queue in both the AM and PM peak. It should be noted that the I-95 southbound off ramp experienced queues that could not be fully observed from the intersection.

Table 14 – AM Peak Hour Observed Queues Compared to Modeled Queues

Intersection	Direction	Observed Maximum Queue				Modeled Maximum Queue Length (ft)	Within 20% Range?
		Max Queue (vehicles)	Max Queue (feet)	20% of Max Queue Range			
		AM	AM	Lower	Upper		
SW 7th Street/SW 4th Avenue	WB	17	425	340	510	474	Yes
SW 8th Street/SW 4th Avenue	EB	20	500	400	600	484	Yes
SW 8th Street/SW 4th Avenue	SB	12	325	260	390	288	Yes
SW 7th Street at I-95 off-ramp	SB (ramp)	30+*	-	-	-	1,821	-

*Maximum queue length could not be observed due to geometric restrictions

Table 15 – PM Peak Hour Observed Queues Compared to Modeled Queues

Intersection	Direction	Observed Maximum Queue				Modeled Maximum Queue Length (ft)	Within 20% Range?
		Max Queue (vehicles)	Max Queue (feet)	20% of Max Queue Range			
		AM	AM	Lower	Upper		
SW 7th Street/SW 4th Avenue	WB	17	425	340	510	467	Yes
SW 8th Street/SW 4th Avenue	EB	20	500	400	600	410	Yes
SW 8th Street/SW 4th Avenue	SB	12	325	260	390	290	Yes
SW 7th Street at I-95 off-ramp	SB (ramp)	30+*	-	-	-	4,745	-

*Maximum queue length could not be observed due to geometric restrictions

6.2.4 Visual Audits (Bottlenecks)

Based on visual audits from field visits, the AM and PM peak period simulation models capture the trends and bottlenecks along the SW 7th Street and SW 8th Street arterial as well as the I-95 ramps. An overview of the critical areas during the AM and PM peak period is as follows:

AM Peak Period

- SW 7th Street Westbound: Significant congestion resulting from a bottleneck at the I-95 southbound off-ramp that reaches South Miami Avenue.
- SW 8th Street Eastbound: Significant congestion resulting from the 4th Avenue/I-95 southbound on-ramp intersection that affects the upstream intersection (5th Avenue).
- I-95 Northbound: Off-ramp terminal at SW 8th Street has unique geometry that merges with 3rd Avenue and causes congestion on the ramp but does not affect the mainline.
- I-95 Southbound: Congestion on the I-95 southbound C-D Road due to queues at the ramp terminal that rarely affected the mainline.

PM Peak Period

- SW 7th Street Westbound: Moderate congestion resulting from a bottleneck at the I-95 southbound off-ramp that affects the upstream intersection (3rd Avenue).
- SW 8th Street Eastbound: Moderate congestion resulting from the 4th Avenue/I-95 southbound on-ramp intersection.
- Northbound: Off-ramp terminal at SW 8th Street has unique geometry that merges with 3rd Avenue and causes congestion on the ramp but does not affect the mainline.
- Southbound: Congestion from the I-95 southbound C-D Road due to queues at the ramp terminal that caused congestion on the mainline.

The calibrated AM and PM peak period simulation models reasonably replicated the bottlenecks along the SW 7th and SW 8th Street arterials as well as the I-95 ramps. Upon reviewing the animation, no residual congestion/queues were evident along the corridor for either peak period.

7.0 CONCLUSIONS

This report documented the VISSIM simulation model development and calibration effort for the existing AM and PM peak periods, which will serve as the basis for the Future Conditions analysis. The calibration effort produced simulation output that reasonably replicated volume, queue lengths, and bottlenecks along the SW 7th and SW 8th Street arterials as well as the I-95 ramps for both the AM and PM peak periods.

Appendix A: Existing AM and PM Traffic Counts

	283	531	0	0	0	0	0	0	0	0	660	74
			0	0	0	0	0	0	0			
			0%									
	7		0	0	0	0	0	0	0			
	6		0	0	0	0	0	0	0	0		0
												125
			0	0	0	0	0	0	0	0		0
			0	0	0	0	0	0	0	0		
			0	0	0	0	0	0	0	0		
	2		0	0	0	0	0	0	0	0		
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
			0	0	0	0	0	0	0	0		

	422	589	0	0	0	0	0	0	0	0	1011	113
	4...		0	0	0	0	0	0	0	0		
	45%		0%							0%		
	2%	5	0	0	0	0	0	0	0	0		
		0										
		7										
		3										
			0	0	0	0	0	0	0	0		0
												321
		0	0	0	0	0	0	0	0	0		0
			0	0	0	0	0	0	0	0		
			0	0	0	0	0	0	0	0		
			0	0	0	0	0	0	0	0		
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
			0	0	0	0	0	0	0	0		

INTERSECTION ANALYSIS SHEET

SW 7th St @ SW 1st Ave

"No-Build" - Opening Year

	N-S	E-W
Growth Rate =	0.88%	1.9%
Peak Season =	1.00	
Buildout Year =	2020	
Years =	7	

AM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	0	0	0	611	304	0	0	0	126	783	0
Peak Season Volume	0	0	0	0	611	304	0	0	0	126	783	0
				0%	67%	33%				14%	86%	0%
Committed Trips	*0*	*0*	*0*	*0*	*317*	*70*	*0*	*0*	*0*	*89*	*246*	*0*
Brickell CitiCentre North 2					12	33				2	11	
Premiere Towers					58						25	
600 Brickell												
The Pointe at Brickell Village												
Miami River Development SAP	0	0	0	0	0	21	0	0	0	0	53	0
Brickell Bayview Center					4					11	24	
Brickell CitiCentre					243	16				76	132	
Walgreens	0	0	0	0	0	0	0	0	0	0	0	0
1101 Brickell Avenue	0	0	0	0	0	0	0	0	0	0	0	0
The Beacon	0	0	0	0	0	0	0	0	0	0	0	0
Brickell Station	0	0	0	0	0	0	0	0	0	0	0	0
888 Brickell	0	0	0	0	0	0	0	0	0	0	0	0
TD Bank	0	0	0	0	0	0	0	0	0	0	1	0
Church of Jesus Christ LDS	0	0	0	0	0	0	0	0	0	0	0	0
Background	0	0	0	0	967	393	0	0	0	233	1,138	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**967**	**393**	**0**	**0**	**0**	**233**	**1,138**	**0**

PM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	0	0	0	646	286	0	0	0	203	1178	0
Peak Season Volume	0	0	0	0	646	286	0	0	0	203	1,178	0
				0%	69%	31%				15%	85%	0%
Committed Trips	*0*	*0*	*0*	*0*	*360*	*84*	*0*	*0*	*0*	*197*	*1,045*	*0*
Brickell CitiCentre North 2					32	47				12	58	
Premiere Towers					49						26	
600 Brickell										29	263	
The Pointe at Brickell Village					30						28	
Miami River Development SAP	0	0	0	0	0	20	0	0	0	0	82	0
Brickell Bayview Center					11					12	3	
Brickell CitiCentre					238	12				136	521	
Walgreens	0	0	0	0	0	3	0	0	0	0	11	0
1101 Brickell Avenue	0	0	0	0	0	0	0	0	0	5	26	0
The Beacon	0	0	0	0	0	0	0	0	0	0	1	0
Brickell Station	0	0	0	0	0	0	0	0	0	1	8	0
888 Brickell	0	0	0	0	0	0	0	0	0	2	10	0
TD Bank	0	0	0	0	0	1	0	0	0	0	4	0
Church of Jesus Christ LDS	0	0	0	0	0	1	0	0	0	0	4	0
Background	0	0	0	0	1,047	388	0	0	0	428	2,387	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**1,047**	**388**	**0**	**0**	**0**	**428**	**2,387**	**0**

	0	597	69	0	0	0	231	1638	0	0	0	0
	0		69	0	0	0			0	0	0	0
	0%		100%						0%			
	0		42	0	0	0			0	0	0	0
	0	0	0	0	0	0				0	0	0
		1										
		25	42									
	0	0	0	0	0	0				0	0	0
	0			0	0	0			0	0	0	0
	0			0	0	0			0	0	0	0
	0			0	0	0			0	0	0	0
					0%	0%	0%	0%	0%	0%	0%	0%
	0			0	0	0			0	0	0	0

	0	686	51	0	0	0	286	951	0	0	0	0
									0	0	0	0
									0%			
									0	0	0	0
									0	0	0	0
									0	0	0	0
									0	0	0	0
									0	0	0	0
	0%							0%	0%			
									0	0	0	0

2013 Node 4130

INTERSECTION ANALYSIS SHEET

SW 8th St @ SW 1st Ave

"No-Build" - Opening Year

	N-S	E-W
Growth Rate =	0.88%	1.9%
Peak Season =	1.00	
Buildout Year =	2020	
Years =	7	

AM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	0	0	207	463	0	0	1554	493	0	0	0
Peak Season Volume	0	0	0	207	463	0	0	1,554	493	0	0	0
				31%	69%	0%	0%	76%	24%			
Committed Trips	*0*	*0*	*0*	*307*	*99*	*0*	*0*	*494*	*19*	0	0	0
Brickell CityCentre North 2				7	7			27				
Premiere Towers					58			26				
600 Brickell												
The Pointe at Brickell Village												
Miami River Development SAP	0	0	0	0	0	0	0	59	18	0	0	0
Brickell Bayview Center				7	8			5				
Brickell CityCentre				293	26			377				
Walgreens	0	0	0	0	0	0	0	0	0	0	0	0
1101 Brickell Avenue	0	0	0	0	0	0	0	0	0	0	0	0
The Beacon	0	0	0	0	0	0	0	0	0	0	0	0
Brickell Station	0	0	0	0	0	0	0	0	0	0	0	0
888 Brickell	0	0	0	0	0	0	0	0	0	0	0	0
TD Bank	0	0	0	0	0	0	0	1	0	0	0	0
Church of Jesus Christ LDS	0	0	0	0	0	0	0	0	0	0	0	0
Background	0	0	0	527	591	0	0	2,264	581	0	0	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	527	591	0	0	2,264	581	0	0	0

PM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	0	0	138	712	0	0	1044	340	0	0	0
Peak Season Volume	0	0	0	138	712	0	0	1,044	340	0	0	0
				16%	84%	0%	0%	75%	25%			
Committed Trips	*0*	*0*	*0*	*338*	*222*	*0*	*0*	*782*	*60*	0	0	0
Brickell CityCentre North 2				27	17			111				
Premiere Towers					49			21				
600 Brickell					29			86				
The Pointe at Brickell Village					30				28			
Miami River Development SAP	0	0	0	0	0	0	0	82	27	0	0	0
Brickell Bayview Center				21	2			18				
Brickell CityCentre				279	95			369				
Walgreens	0	0	0	0	0	0	0	11	4	0	0	0
1101 Brickell Avenue	0	0	0	4	0	0	0	31	0	0	0	0
The Beacon	0	0	0	3	0	0	0	37	0	0	0	0
Brickell Station	0	0	0	1	0	0	0	6	0	0	0	0
888 Brickell	0	0	0	1	0	0	0	5	0	0	0	0
TD Bank	0	0	0	0	0	0	0	1	0	0	0	0
Church of Jesus Christ LDS	0	0	0	0	0	0	0	4	1	0	0	0
Background	0	0	0	485	979	0	0	1,971	447	0	0	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	485	979	0	0	1,971	447	0	0	0

INTERSECTION ANALYSIS SHEET

SW 8th St @ SW 2nd Ave

"No-Build" - Opening Year

	N-S	E-W
Growth Rate =	0.88%	1.9%
Peak Season =	1.00	
Buildout Year =	2020	
Years =	7	

AM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	896	81	129	216	0	386	1651	248	0	0	0
Peak Season Volume	0	896	81	129	216	0	386	1,651	248	0	0	0
	0%	92%	8%	37%	63%	0%	17%	72%	11%			
Committed Trips	*0*	*18*	*2*	*4*	*0*	*0*	*39*	*507*	*20*	*0*	*0*	*0*
Brickell CitiCentre North 2	0	0	1	2	0	0	0	24	0	0	0	0
Premiere Towers	0	0	1	2	0	0	0	23	0	0	0	0
600 Brickell	0	0	0	0	0	0	0	0	0	0	0	0
The Pointe at Brickell Village												
Miami River Development SAP		18					39	77	20			
Brickell Bayview Center	0	0	0	0	0	0	0	4	0	0	0	0
Brickell CitiCentre								377				
Walgreens												
1101 Brickell Avenue	0	0	0	0	0	0	0	0	0	0	0	0
The Beacon	0	0	0	0	0	0	0	0	0	0	0	0
Brickell Station	0	0	0	0	0	0	0	0	0	0	0	0
888 Brickell	0	0	0	0	0	0	0	0	0	0	0	0
TD Bank	0	0	0	0	0	0	0	1	0	0	0	0
Church of Jesus Christ LDS	0	0	0	0	0	0	0	0	0	0	0	0
Background	0	971	88	141	230	0	479	2,388	303	0	0	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**971**	**88**	**141**	**230**	**0**	**479**	**2,388**	**303**	**0**	**0**	**0**

PM Peak Hour

	Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
Base Year (2013) Volume	0	869	82	146	351	0	316	1130	375	0	0	0
Peak Season Volume	0	869	82	146	351	0	316	1,130	375	0	0	0
	0%	91%	9%	29%	71%	0%	17%	62%	21%			
Committed Trips	*0*	*28*	*19*	*35*	*0*	*0*	*79*	*789*	*33*	*0*	*0*	*0*
Brickell CitiCentre North 2	0	0	7	12	0	0	0	92	0	0	0	0
Premiere Towers	0	0	1	2	0	0	0	17	0	0	0	0
600 Brickell	0	0	5	9	0	0	0	71	0	0	0	0
The Pointe at Brickell Village								28				
Miami River Development SAP		25					55	109	28			
Brickell Bayview Center	0	0	1	2	0	0	0	15	0	0	0	0
Brickell CitiCentre								369				
Walgreens		3					22	14	3			
1101 Brickell Avenue	0	0	2	3	0	0	0	26	0	0	0	0
The Beacon	0	0	2	4	0	0	0	31	0	0	0	0
Brickell Station	0	0	0	1	0	0	0	5	0	0	0	0
888 Brickell	0	0	0	1	0	0	0	4	0	0	0	0
TD Bank	0	0	0	0	0	0	0	2	1	0	0	0
Church of Jesus Christ LDS	0	0	0	0	0	0	1	5	2	0	0	0
Background	0	952	106	190	373	0	439	2,076	460	0	0	0
% Diverted Traffic	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Diverted Traffic Volume	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**952**	**106**	**190**	**373**	**0**	**439**	**2,076**	**460**	**0**	**0**	**0**

Intersection Name: SW 8ST & NB ON-OFF RP	NB ON_OFF RAMP Northbound				SW 3 AVE Southbound				SW 8 STREET Eastbound				SW 8 STREET Westbound					
Start Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		15 MIN TOTAL	Hourly Total
AM																		
7:00 AM	0	59	48		0	60	0		9	289	66		0	0	0		531	N/A
7:15 AM	0	40	60		1	57	0		13	346	51		0	0	0		568	N/A
7:30 AM	0	64	70		1	66	8		4	366	56		0	0	0		635	N/A
7:45 AM	0	64	63		3	62	0		2	398	54		0	0	0		646	2380
8:00 AM	0	75	81		1	81	0		5	419	49		0	0	0		711	2560
8:15 AM	0	66	83		1	70	0		9	497	45		0	0	0		771	2763
8:30 AM	0	54	71		3	80	0		9	486	37		0	0	0		740	2868
8:45 AM	0	47	74		3	65	0		8	430	18		0	0	0		645	2867
PM																		
4:00 PM	1	90	64		3	93	0		17	307	23		0	0	0		598	N/A
4:15 PM	0	117	97		4	86	0		24	299	11		0	0	0		638	N/A
4:30 PM	0	129	74		5	96	0		16	326	23		0	0	0		669	N/A
4:45 PM	0	110	77		4	99	0		18	338	20		0	0	0		666	2571
5:00 PM	0	113	71		8	79	0		23	322	14		0	0	0		630	2603
5:15 PM	0	103	84		2	83	0		22	329	20		0	0	0		643	2608
5:30 PM	1	113	79		5	81	0		15	390	13		0	0	0		697	2636
5:45 PM	1	93	86		7	94	0		17	369	16		0	0	0		683	2653
PEAK HOUR VOLUME	Manual?	No																
AM PEAK HR	0	259	298	0	8	293	0	0	25	1800	185	0	0	0	0	0		2868
SEA ADJ AM PEAK HR	*0*	*259*	*298*	*0*	*8*	*293*	*0*	*0*	*25*	*1800*	*185*	*0*	*0*	*0*	*0*	*0*		*2868*
AM MOVEMENT PHF	*N/A*	*0.863*	*0.898*	*N/A*	*0.667*	*0.904*	*N/A*	*N/A*	*0.694*	*0.905*	*0.856*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
AM APPROACH PHF	*0.893*				*0.907*				*0.912*				*N/A*					
MD PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ MD PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
MD MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
MD APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
PM PEAK HR	2	422	320	0	22	337	0	0	77	1410	63	0	0	0	0	0		2653
SEA ADJ PM PEAK HR	*2*	*422*	*320*	*0*	*22*	*337*	*0*	*0*	*77*	*1410*	*63*	*0*	*0*	*0*	*0*	*0*		*2653*
PM MOVEMENT PHF	*0.500*	*0.934*	*0.930*	*N/A*	*0.688*	*0.896*	*N/A*	*N/A*	*0.837*	*0.904*	*0.788*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
PM APPROACH PHF	*0.964*				*0.889*				*0.927*				*N/A*					
NT PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ NT PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
NT MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
NT APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
TURNING PERCENTAGE																		
AM	0%	46%	54%	0%	3%	97%	0%	0%	1%	90%	9%	0%	N/A	N/A	N/A	N/A		
MD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PM	0%	57%	43%	0%	6%	94%	0%	0%	5%	91%	4%	0%	N/A	N/A	N/A	N/A		
NT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

PEAK HOUR START TIME	TRUE	USED
AM	7:45 AM	7:45 AM
MD	N/A	N/A
PM	5:00 PM	5:00 PM
NT	N/A	N/A

TIME PERIOD ADJUSTED (YES/NO)

AM MD

INTERSECTION PHF	TRUE	USED
AM	0.93	0.93
MD	N/A	N/A
PM	0.95	0.95
NT	N/A	N/A

PM NT

Notes

Source: I-95 Master Plan

Analyist: Joseph Samus

Date: 12/7/2016

RS&H

Intersection Name: SW 7 ST& SW3 AV_NB RM	SW 3 AVE Northbound				SW3 AVE Southbound				SW 7 ST Eastbound				SW 7 ST Westbound					
Start Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		15 MIN TOTAL	Hourly Total
AM																		
7:00 AM	46	15	0		0	0	0		0	0	0		65	118	6		250	N/A
7:15 AM	37	18	0		0	0	0		0	0	0		58	100	4		217	N/A
7:30 AM	39	19	0		0	0	0		0	0	0		81	139	7		285	N/A
7:45 AM	50	29	0		0	0	0		0	0	0		65	123	11		278	1030
8:00 AM	43	30	0		0	0	0		0	0	0		80	172	18		343	1123
8:15 AM	40	31	0		0	0	0		0	0	0		60	204	21		356	1262
8:30 AM	37	15	0		0	0	0		0	0	0		76	202	6		336	1313
8:45 AM	43	15	0		0	0	0		0	0	0		65	169	18		310	1345
PM																		
4:00 PM	59	24	0		0	0	0		0	0	0		81	236	26		426	N/A
4:15 PM	60	49	0		0	0	0		0	0	0		78	236	27		450	N/A
4:30 PM	64	51	0		0	0	0		0	0	0		80	238	48		481	N/A
4:45 PM	54	57	0		0	0	0		0	0	0		77	229	56		473	1830
5:00 PM	64	49	0		0	0	0		0	0	0		81	236	69		499	1903
5:15 PM	70	49	0		0	0	0		0	0	0		85	228	75		507	1960
5:30 PM	72	41	0		0	0	0		0	0	0		74	249	43		479	1958
5:45 PM	60	44	0		0	0	0		0	0	0		96	237	45		482	1967
PEAK HOUR VOLUME	Manual?	No																
AM PEAK HR	163	91	0	0	0	0	0	0	0	0	0	0	281	747	63	0		1345
SEA ADJ AM PEAK HR	*163*	*91*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*281*	*747*	*63*	*0*		*1345*
AM MOVEMENT PHF	*0.948*	*0.734*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.878*	*0.915*	*0.750*	*N/A*		
AM APPROACH PHF	*0.870*				*N/A*				*N/A*				*0.957*					
MD PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ MD PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
MD MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
MD APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
PM PEAK HR	266	183	0	0	0	0	0	0	0	0	0	0	336	950	232	0		1967
SEA ADJ PM PEAK HR	*266*	*183*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*336*	*950*	*232*	*0*		*1967*
PM MOVEMENT PHF	*0.924*	*0.934*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.875*	*0.954*	*0.773*	*N/A*		
PM APPROACH PHF	*0.943*				*N/A*				*N/A*				*0.978*					
NT PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ NT PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
NT MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
NT APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
TURNING PERCENTAGE																		
AM	64%	36%	0%	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	26%	68%	6%	0%		
MD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PM	59%	41%	0%	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22%	63%	15%	0%		
NT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

PEAK HOUR START TIME	TRUE	USED
AM	8:00 AM	8:00 AM
MD	N/A	N/A
PM	5:00 PM	5:00 PM
NT	N/A	N/A

TIME PERIOD ADJUSTED (YES/NO)

AM

MD

INTERSECTION PHF	TRUE	USED
AM	0.94	0.94
MD	N/A	N/A
PM	0.97	0.97
NT	N/A	N/A

PM

NT

Notes

Source: I-95 Master Plan

Analyist: Joseph Samus

Date: 12/7/2016

RS&H

Intersection Name: SW 7 ST & SW 2 AVE	SW 2 AVE Northbound				SW 2 AVE Southbound				SW 7 ST Eastbound				SW 7 ST Westbound					
Start Time	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		15 MIN TOTAL	Hourly Total
AM																		
7:00 AM	3	53	0		0	63	17		0	0	0		17	136	39		328	N/A
7:15 AM	8	62	0		0	63	16		0	0	0		11	178	47		385	N/A
7:30 AM	5	46	0		0	67	29		0	0	0		8	187	48		390	N/A
7:45 AM	10	52	0		0	82	32		0	0	0		22	203	42		443	1546
8:00 AM	7	43	0		0	130	38		0	0	0		15	277	61		571	1789
8:15 AM	8	48	0		0	144	39		0	0	0		17	212	54		522	1926
8:30 AM	11	31	0		0	161	40		0	0	0		17	222	57		539	2075
8:45 AM	15	41	0		0	144	46		0	0	0		20	200	49		515	2147
PM																		
4:00 PM	23	52	0		0	64	57		0	0	0		16	282	44		538	N/A
4:15 PM	16	44	0		0	74	63		0	0	0		25	258	47		527	N/A
4:30 PM	17	46	0		0	107	71		0	0	0		15	246	48		550	N/A
4:45 PM	24	53	0		0	92	72		0	0	0		9	275	46		571	2186
5:00 PM	21	51	0		0	111	86		0	0	0		22	255	42		588	2236
5:15 PM	13	58	0		0	127	95		0	0	0		16	297	52		658	2367
5:30 PM	27	56	0		0	128	84		0	0	0		23	268	54		640	2457
5:45 PM	15	53	0		0	130	91		0	0	0		20	273	52		634	2520
PEAK HOUR VOLUME	Manual?	No																
AM PEAK HR	41	163	0	0	0	579	163	0	0	0	0	0	69	911	221	0		2147
SEA ADJ AM PEAK HR	*41*	*163*	*0*	*0*	*0*	*579*	*163*	*0*	*0*	*0*	*0*	*0*	*69*	*911*	*221*	*0*		*2147*
AM MOVEMENT PHF	*0.683*	*0.849*	*N/A*	*N/A*	*N/A*	*0.899*	*0.886*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.863*	*0.822*	*0.906*	*N/A*		
AM APPROACH PHF	*0.911*				*0.923*				*N/A*				*0.851*					
MD PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ MD PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
MD MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
MD APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
PM PEAK HR	76	218	0	0	0	496	356	0	0	0	0	0	81	1093	200	0		2520
SEA ADJ PM PEAK HR	*76*	*218*	*0*	*0*	*0*	*496*	*356*	*0*	*0*	*0*	*0*	*0*	*81*	*1093*	*200*	*0*		*2520*
PM MOVEMENT PHF	*0.704*	*0.940*	*N/A*	*N/A*	*N/A*	*0.954*	*0.937*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.880*	*0.920*	*0.926*	*N/A*		
PM APPROACH PHF	*0.886*				*0.959*				*N/A*				*0.941*					
NT PEAK HR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		0
SEA ADJ NT PEAK HR	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		*0*
NT MOVEMENT PHF	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*		
NT APPROACH PHF	*N/A*				*N/A*				*N/A*				*N/A*					
TURNING PERCENTAGE																		
AM	20%	80%	0%	0%	0%	78%	22%	0%	N/A	N/A	N/A	N/A	6%	76%	18%	0%		
MD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
PM	26%	74%	0%	0%	0%	58%	42%	0%	N/A	N/A	N/A	N/A	6%	80%	15%	0%		
NT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

PEAK HOUR START TIME	TRUE	USED
AM	8:00 AM	8:00 AM
MD	N/A	N/A
PM	5:00 PM	5:00 PM
NT	N/A	N/A

TIME PERIOD ADJUSTED (YES/NO)

AM MD PM NT

INTERSECTION PHF	TRUE	USED
AM	0.94	0.94
MD	N/A	N/A
PM	0.96	0.96
NT	N/A	N/A

Notes

Source: I-95 Master Plan

Analyist: Joseph Samus

Date: 12/7/2016

RS&H

SW 7th Street & SW 8th Avenue
Wednesday

File Name : SW 7th Street & SW 8th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
Page No : 1

Groups Printed- Veh - Trucks - Turns

	SW 8th Avenue Southbound					SW 8th Avenue Northbound					SW 7th Street Westbound					Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
07:00 AM	0	34	6	1	41	13	39	0	0	52	5	172	14	5	196	0	0	0	3	3	292
07:15 AM	0	40	20	0	60	18	53	0	0	71	10	162	14	5	191	0	0	0	4	4	326
07:30 AM	0	58	20	0	78	12	54	0	0	66	16	162	12	6	196	0	0	0	3	3	343
07:45 AM	0	63	21	2	86	16	92	0	1	109	15	171	16	13	215	0	0	0	4	4	414
Total	0	195	67	3	265	59	238	0	1	298	46	667	56	29	798	0	0	0	14	14	1375
08:00 AM	0	35	20	3	58	14	85	0	1	100	13	206	16	6	241	0	0	0	3	3	402
08:15 AM	0	75	32	3	110	18	92	0	1	111	12	187	13	3	215	0	0	0	2	2	438
08:30 AM	0	63	23	3	89	15	81	0	1	97	12	167	8	11	198	0	0	0	2	2	386
08:45 AM	0	50	11	1	62	21	73	0	2	96	9	144	12	5	170	0	0	0	2	2	330
Total	0	223	86	10	319	68	331	0	5	404	46	704	49	25	824	0	0	0	9	9	1556
09:00 AM	0	31	15	1	47	19	49	0	2	70	14	183	11	4	212	0	0	0	0	0	329
09:15 AM	0	42	9	0	51	21	43	0	2	66	12	167	15	8	202	0	0	0	2	2	321
09:30 AM	0	33	9	0	42	22	23	0	0	45	17	195	9	11	232	0	0	0	5	5	324
09:45 AM	0	36	20	3	59	18	31	0	0	49	16	193	22	13	244	0	0	0	2	2	354
Total	0	142	53	4	199	80	146	0	4	230	59	738	57	36	890	0	0	0	9	9	1328
*** BREAK ***																					
04:00 PM	0	44	12	4	60	19	48	0	2	69	10	368	20	10	408	0	0	0	8	8	545
04:15 PM	0	55	14	5	74	22	54	0	4	80	8	383	34	5	430	0	0	0	8	8	592
04:30 PM	0	48	7	3	58	24	47	0	7	78	13	368	24	18	423	0	0	0	4	4	563
04:45 PM	0	49	18	7	74	23	51	0	2	76	14	384	15	10	423	0	0	0	7	7	580
Total	0	196	51	19	266	88	200	0	15	303	45	1503	93	43	1684	0	0	0	27	27	2280
05:00 PM	0	40	14	3	57	33	59	0	1	93	13	379	29	8	429	0	0	0	8	8	587
05:15 PM	0	52	18	3	73	30	67	0	1	98	14	370	25	5	414	0	0	0	5	5	590
05:30 PM	0	41	9	5	55	25	47	0	0	72	12	417	14	2	445	0	0	0	4	4	576
05:45 PM	0	44	19	0	63	30	61	0	0	91	14	356	24	6	400	0	0	0	3	3	557
Total	0	177	60	11	248	118	234	0	2	354	53	1522	92	21	1688	0	0	0	20	20	2310
06:00 PM	0	36	17	2	55	22	47	0	0	69	15	340	12	7	374	0	0	0	9	9	507
06:15 PM	0	44	11	2	57	25	64	0	3	92	13	368	13	4	398	0	0	0	5	5	552

SW 7th Street & SW 8th Avenue
Wednesday

File Name : SW 7th Street & SW 8th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
Page No : 2

Groups Printed- Veh - Trucks - Turns

	SW 8th Avenue Southbound					SW 8th Avenue Northbound					SW 7th Street Westbound					Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
06:30 PM	0	37	10	2	49	18	53	0	1	72	11	267	14	6	298	0	0	0	3	3	422
06:45 PM	0	41	21	3	65	25	56	0	2	83	11	227	14	5	257	0	0	0	3	3	408
Total	0	158	59	9	226	90	220	0	6	316	50	1202	53	22	1327	0	0	0	20	20	1889
Grand Total	0	1091	376	56	1523	503	1369	0	33	1905	299	6336	400	176	7211	0	0	0	99	99	10738
Apprch %	0	71.6	24.7	3.7		26.4	71.9	0	1.7		4.1	87.9	5.5	2.4		0	0	0	100		
Total %	0	10.2	3.5	0.5	14.2	4.7	12.7	0	0.3	17.7	2.8	59	3.7	1.6	67.2	0	0	0	0.9	0.9	
Veh	0	1059	365	39	1463	494	1338	0	24	1856	290	6159	387	160	6996	0	0	0	87	87	10402
% Veh	0	97.1	97.1	69.6	96.1	98.2	97.7	0	72.7	97.4	97	97.2	96.8	90.9	97	0	0	0	87.9	87.9	96.9
Trucks	0	32	11	17	60	9	31	0	9	49	9	177	13	16	215	0	0	0	12	12	336
% Trucks	0	2.9	2.9	30.4	3.9	1.8	2.3	0	27.3	2.6	3	2.8	3.2	9.1	3	0	0	0	12.1	12.1	3.1
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 8th Street & SW 8th Avenue
Wednesday

File Name : SW 8th Street & SW 8th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
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Groups Printed- Veh - Trucks - Turns

	SW 8th Avenue Southbound					SW 8th Avenue Northbound					Westbound					SW 8th Street Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
07:00 AM	22	14	0	5	41	0	21	10	3	34	0	0	0	10	10	31	268	7	4	310	395
07:15 AM	28	18	0	7	53	0	25	11	3	39	0	0	0	2	2	41	294	12	7	354	448
07:30 AM	46	28	0	3	77	0	28	13	4	45	0	0	0	4	4	33	363	13	7	416	542
07:45 AM	39	32	0	8	79	0	47	9	1	57	0	0	0	4	4	59	314	9	8	390	530
Total	135	92	0	23	250	0	121	43	11	175	0	0	0	20	20	164	1239	41	26	1470	1915
08:00 AM	29	19	0	9	57	0	41	13	3	57	0	0	0	1	1	58	288	9	5	360	475
08:15 AM	34	40	0	2	76	0	50	12	6	68	0	0	0	2	2	58	307	10	4	379	525
08:30 AM	39	40	0	7	86	0	34	8	6	48	0	0	0	3	3	53	317	14	5	389	526
08:45 AM	24	27	0	6	57	0	29	12	6	47	0	0	0	3	3	63	278	14	2	357	464
Total	126	126	0	24	276	0	154	45	21	220	0	0	0	9	9	232	1190	47	16	1485	1990
09:00 AM	34	15	0	10	59	0	27	9	1	37	0	0	0	0	0	41	249	19	6	315	411
09:15 AM	26	20	0	4	50	0	22	5	9	36	0	0	0	4	4	42	218	16	7	283	373
09:30 AM	25	18	0	3	46	0	19	8	9	36	0	0	0	4	4	31	214	11	6	262	348
09:45 AM	28	21	0	12	61	0	20	12	11	43	0	0	0	1	1	30	216	16	9	271	376
Total	113	74	0	29	216	0	88	34	30	152	0	0	0	9	9	144	897	62	28	1131	1508
*** BREAK ***																					
04:00 PM	28	26	0	4	58	0	26	10	5	41	0	0	0	4	4	46	197	13	8	264	367
04:15 PM	31	28	0	15	74	0	22	10	11	43	0	0	0	4	4	36	186	5	1	228	349
04:30 PM	17	28	0	24	69	0	24	3	5	32	0	0	0	3	3	34	269	9	12	324	428
04:45 PM	21	40	0	9	70	0	16	12	1	29	0	0	0	4	4	45	290	7	3	345	448
Total	97	122	0	52	271	0	88	35	22	145	0	0	0	15	15	161	942	34	24	1161	1592
05:00 PM	25	27	0	11	63	0	38	7	5	50	0	0	0	2	2	47	297	0	0	344	459
05:15 PM	40	37	0	18	95	0	45	8	2	55	0	0	0	5	5	39	200	6	8	253	408
05:30 PM	20	24	0	12	56	0	17	6	2	25	0	0	0	0	0	44	269	10	9	332	413
05:45 PM	27	37	0	19	83	0	32	15	9	56	0	0	0	7	7	40	285	12	4	341	487
Total	112	125	0	60	297	0	132	36	18	186	0	0	0	14	14	170	1051	28	21	1270	1767
06:00 PM	24	32	0	17	73	0	23	7	4	34	0	0	0	3	3	44	233	13	5	295	405
06:15 PM	34	25	0	13	72	0	38	10	6	54	0	0	0	14	14	40	258	8	4	310	450

SW 8th Street & SW 8th Avenue
Wednesday

File Name : SW 8th Street & SW 8th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
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Groups Printed- Veh - Trucks - Turns

	SW 8th Avenue Southbound					SW 8th Avenue Northbound					Westbound					SW 8th Street Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
06:30 PM	16	23	0	14	53	0	22	9	6	37	0	0	0	5	5	42	245	22	6	315	410
06:45 PM	29	29	0	9	67	0	26	11	3	40	0	0	0	5	5	52	240	6	6	304	416
Total	103	109	0	53	265	0	109	37	19	165	0	0	0	27	27	178	976	49	21	1224	1681
Grand Total	686	648	0	241	1575	0	692	230	121	1043	0	0	0	94	94	1049	6295	261	136	7741	10453
Apprch %	43.6	41.1	0	15.3		0	66.3	22.1	11.6		0	0	0	100		13.6	81.3	3.4	1.8		
Total %	6.6	6.2	0	2.3	15.1	0	6.6	2.2	1.2	10	0	0	0	0.9	0.9	10	60.2	2.5	1.3	74.1	
Veh	667	622	0	172	1461	0	671	227	108	1006	0	0	0	88	88	1035	6128	251	129	7543	10098
% Veh	97.2	96	0	71.4	92.8	0	97	98.7	89.3	96.5	0	0	0	93.6	93.6	98.7	97.3	96.2	94.9	97.4	96.6
Trucks	19	26	0	69	114	0	21	3	13	37	0	0	0	6	6	14	167	10	7	198	355
% Trucks	2.8	4	0	28.6	7.2	0	3	1.3	10.7	3.5	0	0	0	6.4	6.4	1.3	2.7	3.8	5.1	2.6	3.4
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 8th Street & SW 5th Avenue
Wednesday

File Name : SW 8th Street & SW 5th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
Page No : 1

Groups Printed- Veh - Trucks - Turns

	Southbound					SW 5th Avenue Northbound					Westbound					SW 8th Street Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
07:00 AM	0	0	0	6	6	0	23	45	1	69	0	0	0	1	1	14	260	5	13	292	368
07:15 AM	0	0	0	5	5	0	15	73	3	91	0	0	0	0	0	18	283	2	9	312	408
07:30 AM	0	0	0	6	6	0	17	90	1	108	0	0	0	3	3	13	373	2	15	403	520
07:45 AM	0	0	0	15	15	0	23	96	14	133	0	0	0	4	4	23	339	3	22	387	539
Total	0	0	0	32	32	0	78	304	19	401	0	0	0	8	8	68	1255	12	59	1394	1835
08:00 AM	0	0	0	7	7	0	17	113	1	131	0	0	0	2	2	16	324	1	22	363	503
08:15 AM	0	0	0	2	2	0	31	108	0	139	0	0	0	3	3	24	304	2	20	350	494
08:30 AM	0	0	0	8	8	0	11	109	1	121	0	0	0	4	4	15	267	3	11	296	429
08:45 AM	0	0	0	16	16	0	14	119	1	134	0	0	0	0	0	20	331	1	8	360	510
Total	0	0	0	33	33	0	73	449	3	525	0	0	0	9	9	75	1226	7	61	1369	1936
09:00 AM	0	0	0	6	6	0	10	83	1	94	0	0	0	2	2	29	269	6	10	314	416
09:15 AM	0	0	0	7	7	0	15	96	7	118	0	0	0	3	3	18	325	5	17	365	493
09:30 AM	0	0	0	3	3	0	24	61	7	92	0	0	0	2	2	26	253	6	15	300	397
09:45 AM	0	0	0	7	7	0	15	67	5	87	0	0	0	4	4	14	232	6	5	257	355
Total	0	0	0	23	23	0	64	307	20	391	0	0	0	11	11	87	1079	23	47	1236	1661
*** BREAK ***																					
04:00 PM	0	0	0	16	16	0	29	61	9	99	0	0	0	0	0	35	222	12	16	285	400
04:15 PM	0	0	0	8	8	0	31	60	2	93	0	0	0	6	6	47	206	18	16	287	394
04:30 PM	0	0	0	2	2	0	36	67	0	103	0	0	0	1	1	47	275	7	8	337	443
04:45 PM	0	0	0	6	6	0	30	91	4	125	0	0	0	10	10	43	268	15	20	346	487
Total	0	0	0	32	32	0	126	279	15	420	0	0	0	17	17	172	971	52	60	1255	1724
05:00 PM	0	0	0	14	14	0	45	66	7	118	0	0	0	4	4	49	281	9	15	354	490
05:15 PM	0	0	0	9	9	0	34	67	1	102	0	0	0	6	6	36	184	5	22	247	364
05:30 PM	0	0	0	5	5	0	28	54	0	82	0	0	0	2	2	40	176	4	22	242	331
05:45 PM	0	0	0	14	14	0	22	67	18	107	0	0	0	5	5	49	260	28	35	372	498
Total	0	0	0	42	42	0	129	254	26	409	0	0	0	17	17	174	901	46	94	1215	1683
06:00 PM	0	0	0	5	5	0	25	83	5	113	0	0	0	8	8	43	266	14	18	341	467
06:15 PM	0	0	0	2	2	0	15	82	2	99	0	0	0	4	4	35	291	25	30	381	486

SW 8th Street & SW 5th Avenue
Wednesday

File Name : SW 8th Street & SW 5th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
Page No : 2

Groups Printed- Veh - Trucks - Turns

	Southbound					SW 5th Avenue Northbound					Westbound					SW 8th Street Eastbound					
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Int. Total
06:30 PM	0	0	0	15	15	0	17	86	0	103	0	0	0	0	0	44	289	13	42	388	506
06:45 PM	0	0	0	3	3	0	16	72	3	91	0	0	0	3	3	37	321	11	17	386	483
Total	0	0	0	25	25	0	73	323	10	406	0	0	0	15	15	159	1167	63	107	1496	1942
Grand Total	0	0	0	187	187	0	543	1916	93	2552	0	0	0	77	77	735	6599	203	428	7965	10781
Apprch %	0	0	0	100		0	21.3	75.1	3.6		0	0	0	100		9.2	82.8	2.5	5.4		
Total %	0	0	0	1.7	1.7	0	5	17.8	0.9	23.7	0	0	0	0.7	0.7	6.8	61.2	1.9	4	73.9	
Veh	0	0	0	158	158	0	523	1892	88	2503	0	0	0	73	73	722	6447	201	404	7774	10508
% Veh	0	0	0	84.5	84.5	0	96.3	98.7	94.6	98.1	0	0	0	94.8	94.8	98.2	97.7	99	94.4	97.6	97.5
Trucks	0	0	0	29	29	0	20	24	5	49	0	0	0	4	4	13	152	2	24	191	273
% Trucks	0	0	0	15.5	15.5	0	3.7	1.3	5.4	1.9	0	0	0	5.2	5.2	1.8	2.3	1	5.6	2.4	2.5
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 7th Street & SW 4th Avenue/SB I-95 off ramp
Wednesday

File Name : SW 7th St & SW 4th Av-SB I-95 off-ramp Wed
Site Code : 00000000
Start Date : 10/14/2015
Page No : 1

Groups Printed- Veh - Trucks - Turns

	SW 4th Avenue Southbound					Northbound					SW 7th Street Westbound					Eastbound					I-95 SB off-ramp Southwest				
Start Time	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Bear Left	Bear Right	Peds/Bikes	App. Total	Int. Total
07:00 AM	0	61	2	5	68	0	0	0	0	0	69	90	0	0	159	0	0	0	1	1	124	112	5	241	469
07:15 AM	0	65	5	5	75	0	0	0	0	0	70	72	0	0	142	0	0	0	1	1	203	136	5	344	562
07:30 AM	0	45	3	6	54	0	0	0	0	0	80	89	0	3	172	0	0	0	0	0	208	114	6	328	554
07:45 AM	0	70	4	10	84	0	0	0	1	1	124	89	0	0	213	0	0	0	0	0	218	102	10	330	628
Total	0	241	14	26	281	0	0	0	1	1	343	340	0	3	686	0	0	0	2	2	753	464	26	1243	2213
08:00 AM	0	48	4	9	61	0	0	0	1	1	135	125	0	2	262	0	0	0	1	1	256	141	9	406	731
08:15 AM	0	62	2	4	68	0	0	0	1	1	146	93	0	1	240	0	0	0	1	1	321	123	4	448	758
08:30 AM	0	50	2	7	59	0	0	0	1	1	110	79	0	0	189	0	0	0	2	2	324	73	7	404	655
08:45 AM	0	64	4	5	73	0	0	0	1	1	116	77	0	0	193	0	0	0	0	0	316	91	5	412	679
Total	0	224	12	25	261	0	0	0	4	4	507	374	0	3	884	0	0	0	4	4	1217	428	25	1670	2823
09:00 AM	0	50	5	3	58	0	0	0	0	0	112	116	0	0	228	0	0	0	2	2	310	85	3	398	686
09:15 AM	0	45	3	5	53	0	0	0	1	1	120	117	0	0	237	0	0	0	0	0	309	102	5	416	707
09:30 AM	0	32	6	4	42	0	0	0	0	0	99	128	0	0	227	0	0	0	0	0	296	99	4	399	668
09:45 AM	0	40	3	5	48	0	0	0	0	0	102	122	0	0	224	0	0	0	1	1	283	99	5	387	660
Total	0	167	17	17	201	0	0	0	1	1	433	483	0	0	916	0	0	0	3	3	1198	385	17	1600	2721
*** BREAK ***																									
04:00 PM	0	46	12	4	62	0	0	0	2	2	125	168	0	1	294	0	0	0	0	0	197	203	4	404	762
04:15 PM	0	33	8	9	50	0	0	0	0	0	132	159	0	0	291	0	0	0	0	0	197	204	9	410	751
04:30 PM	0	53	2	8	63	0	0	0	0	0	140	157	0	0	297	0	0	0	2	2	210	248	8	466	828
04:45 PM	0	82	7	25	114	0	0	0	2	2	158	182	0	2	342	0	0	0	4	4	184	246	25	455	917
Total	0	214	29	46	289	0	0	0	4	4	555	666	0	3	1224	0	0	0	6	6	788	901	46	1735	3258
05:00 PM	0	63	9	9	81	0	0	0	0	0	126	163	0	0	289	0	0	0	1	1	218	219	11	448	819
05:15 PM	0	47	10	9	66	0	0	0	0	0	107	202	0	0	309	0	0	0	1	1	256	248	10	514	890
05:30 PM	0	54	7	5	66	0	0	0	0	0	119	170	0	0	289	0	0	0	2	2	230	238	5	473	830
05:45 PM	0	39	4	9	52	0	0	0	0	0	90	199	0	0	289	0	0	0	3	3	266	202	11	479	823
Total	0	203	30	32	265	0	0	0	0	0	442	734	0	0	1176	0	0	0	7	7	970	907	37	1914	3362
06:00 PM	0	55	5	6	66	0	0	0	0	0	106	159	0	0	265	0	0	0	0	0	241	163	7	411	742
06:15 PM	0	55	7	3	65	0	0	0	0	0	154	178	0	0	332	0	0	0	0	0	247	184	4	435	832
06:30 PM	0	46	11	10	67	0	0	0	0	0	156	168	0	0	324	0	0	0	0	0	226	135	14	375	766
06:45 PM	0	50	16	10	76	0	0	0	0	0	147	163	0	0	310	0	0	0	3	3	239	160	11	410	799
Total	0	206	39	29	274	0	0	0	0	0	563	668	0	0	1231	0	0	0	3	3	953	642	36	1631	3139
Grand Total	0	1255	141	175	1571	0	0	0	10	10	2843	3265	0	9	6117	0	0	0	25	25	5879	3727	187	9793	17516
Apprch %	0	79.9	9	11.1		0	0	0	100		46.5	53.4	0	0.1		0	0	0	100		60	38.1	1.9		
Total %	0	7.2	0.8	1	9	0	0	0	0.1	0.1	16.2	18.6	0	0.1	34.9	0	0	0	0.1	0.1	33.6	21.3	1.1	55.9	
Veh	0	1243	137	144	1524	0	0	0	7	7	2796	3154	0	8	5958	0	0	0	19	19	5730	3676	144	9550	17058
% Veh	0	99	97.2	82.3	97	0	0	0	70	70	98.3	96.6	0	88.9	97.4	0	0	0	76	76	97.5	98.6	77	97.5	97.4

SW 7th Street & SW 4th Avenue/SB I-95 off ramp
Wednesday

File Name : SW 7th St & SW 4th Av-SB I-95 off-ramp Wed
Site Code : 00000000
Start Date : 10/14/2015
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Groups Printed- Veh - Trucks - Turns

	SW 4th Avenue Southbound					Northbound					SW 7th Street Westbound					Eastbound					I-95 SB off-ramp Southwest				
	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Left	Thru	Rght	Peds/Bike	App. Total	Bear Left	Bear Right	Peds/Bikes	App. Total	Int. Total
Trucks	0	12	4	31	47	0	0	0	3	3	47	111	0	1	159	0	0	0	6	6	149	51	43	243	458
% Trucks	0	1	2.8	17.7	3	0	0	0	30	30	1.7	3.4	0	11.1	2.6	0	0	0	24	24	2.5	1.4	23	2.5	2.6
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW 8th Street & SW 4th Avenue
Wednesday

File Name : SW 8th Street & SW 4th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
Page No : 1

Groups Printed- Veh - Trucks

	SW 4th Avenue Southbound					Northbound					Westbound					SW 8th Street Eastbound					
Start Time	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Int. Total
07:00 AM	197	72	0	5	274	0	0	0	4	4	0	0	0	0	0	0	327	13	6	346	624
07:15 AM	228	77	0	5	310	0	0	0	6	6	0	0	0	0	0	0	395	12	4	411	727
07:30 AM	199	94	0	3	296	0	0	0	4	4	0	0	0	0	0	0	457	13	5	475	775
07:45 AM	280	97	0	6	383	0	0	0	3	3	0	0	0	0	0	0	439	16	2	457	843
Total	904	340	0	19	1263	0	0	0	17	17	0	0	0	0	0	0	1618	54	17	1689	2969
08:00 AM	312	99	0	12	423	0	0	0	6	6	0	0	0	0	0	0	484	10	9	503	932
08:15 AM	404	108	0	5	517	0	0	0	3	3	0	0	0	0	0	0	464	10	3	477	997
08:30 AM	313	117	0	6	436	0	0	0	1	1	0	0	0	0	0	0	415	12	2	429	866
08:45 AM	351	119	0	6	476	0	0	0	7	7	0	0	0	0	0	0	486	5	0	491	974
Total	1380	443	0	29	1852	0	0	0	17	17	0	0	0	0	0	0	1849	37	14	1900	3769
09:00 AM	315	136	0	6	457	0	0	0	2	2	0	0	0	0	0	0	380	11	2	393	852
09:15 AM	346	114	0	8	468	0	0	0	2	2	0	0	0	0	0	0	372	19	0	391	861
09:30 AM	322	99	0	9	430	0	0	0	2	2	0	0	0	0	0	0	325	16	5	346	778
09:45 AM	322	102	0	14	438	0	0	0	1	1	0	0	0	0	0	0	315	28	2	345	784
Total	1305	451	0	37	1793	0	0	0	7	7	0	0	0	0	0	0	1392	74	9	1475	3275
*** BREAK ***																					
04:00 PM	247	84	0	12	343	0	0	0	5	5	0	0	0	0	0	0	253	15	8	276	624
04:15 PM	208	108	0	20	336	0	0	0	2	2	0	0	0	0	0	0	255	15	4	274	612
04:30 PM	237	125	0	20	382	0	0	0	4	4	0	0	0	0	0	0	283	22	2	307	693
04:45 PM	309	127	0	22	458	0	0	0	5	5	0	0	0	0	0	0	330	21	6	357	820
Total	1001	444	0	74	1519	0	0	0	16	16	0	0	0	0	0	0	1121	73	20	1214	2749
05:00 PM	262	110	0	25	397	0	0	0	3	3	0	0	0	0	0	0	297	16	5	318	718
05:15 PM	265	99	0	18	382	0	0	0	2	2	0	0	0	0	0	0	249	11	7	267	651
05:30 PM	276	126	0	17	419	0	0	0	7	7	0	0	0	0	0	0	279	7	6	292	718
05:45 PM	276	147	0	18	441	0	0	0	7	7	0	0	0	0	0	0	309	16	4	329	777
Total	1079	482	0	78	1639	0	0	0	19	19	0	0	0	0	0	0	1134	50	22	1206	2864
06:00 PM	290	155	0	24	469	0	0	0	1	1	0	0	0	0	0	0	296	24	6	326	796
06:15 PM	314	138	0	22	474	0	0	0	7	7	0	0	0	0	0	0	282	51	1	334	815
06:30 PM	337	121	0	19	477	0	0	0	4	4	0	0	0	0	0	0	272	56	5	333	814
06:45 PM	281	112	0	18	411	0	0	0	0	0	0	0	0	0	0	0	316	49	4	369	780
Total	1222	526	0	83	1831	0	0	0	12	12	0	0	0	0	0	0	1166	180	16	1362	3205

SW 8th Street & SW 4th Avenue
Wednesday

File Name : SW 8th Street & SW 4th Avenue WED
Site Code : 00000000
Start Date : 10/14/2015
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Groups Printed- Veh - Trucks

	SW 4th Avenue Southbound					Northbound					Westbound					SW 8th Street Eastbound					
	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Left	Thru	Rght	Bikes	App. Total	Int. Total
Grand Total	6891	2686	0	320	9897	0	0	0	88	88	0	0	0	0	0	0	8280	468	98	8846	18831
Apprch %	69.6	27.1	0	3.2		0	0	0	100		0	0	0	0		0	93.6	5.3	1.1		
Total %	36.6	14.3	0	1.7	52.6	0	0	0	0.5	0.5	0	0	0	0	0	0	44	2.5	0.5	47	
Veh	6623	2678	0	243	9544	0	0	0	85	85	0	0	0	0	0	0	8147	467	87	8701	18330
% Veh	96.1	99.7	0	75.9	96.4	0	0	0	96.6	96.6	0	0	0	0	0	0	98.4	99.8	88.8	98.4	97.3
Trucks	268	8	0	77	353	0	0	0	3	3	0	0	0	0	0	0	133	1	11	145	501
% Trucks	3.9	0.3	0	24.1	3.6	0	0	0	3.4	3.4	0	0	0	0	0	0	1.6	0.2	11.2	1.6	2.7

COUNTY: 87
STATION: 6303
DESCRIPTION: RAMP 87270170 FROM EB SW 8 ST TO NB I-95, 100' E O
START DATE: 06/17/2015
START TIME: 0000

DIRECTION: N

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	63	79	79	48	269
0100	47	31	30	28	136
0200	23	18	24	24	89
0300	18	13	15	15	61
0400	19	21	28	29	97
0500	34	50	69	82	235
0600	128	168	192	206	694
0700	238	258	295	327	1118
0800	310	318	333	320	1281
0900	252	270	228	212	962
1000	244	211	208	203	866
1100	197	208	226	227	858
1200	218	235	212	242	907
1300	206	244	223	236	909
1400	246	277	252	278	1053
1500	290	271	312	262	1135
1600	266	231	252	222	971
1700	232	213	183	217	845
1800	235	232	232	237	936
1900	233	238	231	200	902
2000	189	198	174	179	740
2100	191	157	147	180	675
2200	156	154	126	134	570
2300	139	116	82	94	431
24-HOUR TOTALS:					16740

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	745	1288
P.M.	1445	1151
DAILY	745	1288

TRUCK PERCENTAGE 3.52 NAN 3.52

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	54	14125	1972	105	274	121	6	30	52	1	0	0	0	0	0	589	16740

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6303
DESCRIPTION: RAMP 87270170 FROM EB SW 8 ST TO NB I-95, 100' E O
START DATE: 06/18/2015
START TIME: 0000

DIRECTION: N

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	81	91	82	52	306
0100	57	47	58	50	212
0200	57	34	36	33	160
0300	27	21	25	28	101
0400	39	36	38	32	145
0500	54	60	65	87	266
0600	127	169	192	217	705
0700	250	260	312	267	1089
0800	297	317	318	301	1233
0900	283	249	221	219	972
1000	223	190	219	116	748
1100	198	216	232	200	846
1200	235	235	217	233	920
1300	212	236	228	262	938
1400	284	272	266	268	1090
1500	265	283	296	306	1150
1600	286	271	282	252	1091
1700	233	227	218	217	895
1800	251	227	255	255	988
1900	258	247	259	208	972
2000	183	182	174	170	709
2100	162	126	140	124	552
2200	123	167	164	148	602
2300	145	110	97	87	439
24-HOUR TOTALS:					17129

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	800	1233
P.M.	1515	1171
DAILY	800	1233

TRUCK PERCENTAGE 3.51 NAN 3.51

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	64	14445	2018	77	263	170	6	38	46	1	0	0	1	0	0	602	17129

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6304
DESCRIPTION: RAMP 87270171 FROM SB I-95 TO WB SW 7 ST, 200' S O
START DATE: 07/28/2015
START TIME: 0000

DIRECTION: W

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	127	84	90	73	374
0100	62	68	49	36	215
0200	34	35	29	31	129
0300	34	34	46	37	151
0400	39	40	48	51	178
0500	74	92	143	177	486
0600	172	245	270	259	946
0700	283	321	337	347	1288
0800	392	400	428	385	1605
0900	371	345	370	335	1421
1000	322	297	320	279	1218
1100	320	260	298	293	1171
1200	317	281	258	299	1155
1300	270	322	295	246	1133
1400	261	333	317	284	1195
1500	283	327	320	340	1270
1600	347	361	398	341	1447
1700	385	386	381	404	1556
1800	321	427	402	366	1516
1900	354	368	304	311	1337
2000	254	243	229	235	961
2100	199	220	203	202	824
2200	206	166	163	166	701
2300	172	173	136	138	619
24-HOUR TOTALS:					22896

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	800	1605
P.M.	1700	1556
DAILY	800	1605

TRUCK PERCENTAGE 2.14 NAN 2.14

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
W	64	20115	2228	35	236	145	28	25	11	4	0	0	5	0	0	489	22896

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6304
DESCRIPTION: RAMP 87270171 FROM SB I-95 TO WB SW 7 ST, 200' S O
START DATE: 07/29/2015
START TIME: 0000

	DIRECTION: W				
TIME	1ST	2ND	3RD	4TH	TOTAL
0000	104	102	93	86	385
0100	71	53	43	30	197
0200	33	34	39	32	138
0300	28	33	32	37	130
0400	29	35	44	47	155
0500	66	84	151	176	477
0600	195	200	266	266	927
0700	294	296	320	395	1305
0800	381	394	412	388	1575
0900	376	373	311	325	1385
1000	322	344	297	340	1303
1100	299	266	273	276	1114
1200	328	273	255	271	1127
1300	255	280	288	281	1104
1400	282	279	320	301	1182
1500	319	331	297	303	1250
1600	384	389	360	395	1528
1700	393	361	399	393	1546
1800	393	414	403	397	1607
1900	328	337	300	256	1221
2000	276	258	261	234	1029
2100	244	221	221	192	878
2200	195	190	195	148	728
2300	124	134	105	118	481
24-HOUR TOTALS:					22772

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	745	1582
P.M.	1800	1607
DAILY	1800	1607

TRUCK PERCENTAGE 2.38 NAN 2.38

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
W	87	19843	2301	41	290	121	38	26	5	10	0	0	10	0	0	541	22772

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6356
DESCRIPTION: RAMP 87270501 FROM EB SW 8 ST TO NB I-95, 300' S O
START DATE: 06/09/2015
START TIME: 0000

DIRECTION: N

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	40	30	38	23	131
0100	23	24	8	16	71
0200	12	8	9	7	36
0300	7	6	4	10	27
0400	9	8	13	13	43
0500	21	19	32	42	114
0600	50	56	90	98	294
0700	110	128	142	146	526
0800	128	122	131	96	477
0900	115	91	110	109	425
1000	96	113	108	108	425
1100	86	104	88	102	380
1200	96	107	96	102	401
1300	92	121	92	108	413
1400	100	119	88	114	421
1500	98	107	105	119	429
1600	111	108	106	113	438
1700	108	113	99	102	422
1800	101	109	115	107	432
1900	103	105	120	103	431
2000	109	116	83	97	405
2100	85	68	65	71	289
2200	71	52	52	52	227
2300	56	36	32	17	141
24-HOUR TOTALS:					7398

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	715	544
P.M.	1545	444
DAILY	715	544

TRUCK PERCENTAGE 2.28 NAN 2.28

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	35	6512	682	29	97	24	1	11	5	1	0	0	1	0	0	169	7398

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6356
DESCRIPTION: RAMP 87270501 FROM EB SW 8 ST TO NB I-95, 300' S O
START DATE: 06/10/2015
START TIME: 0000

DIRECTION: N

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	35	26	36	18	115
0100	30	21	1	15	67
0200	13	3	8	6	30
0300	9	10	10	11	40
0400	11	6	12	15	44
0500	20	19	31	37	107
0600	54	61	95	93	303
0700	106	135	124	141	506
0800	144	44	110	85	383
0900	119	90	109	132	450
1000	88	100	98	105	391
1100	96	111	95	103	405
1200	100	100	88	109	397
1300	92	108	106	115	421
1400	94	113	108	119	434
1500	97	122	101	102	422
1600	114	110	102	110	436
1700	98	109	108	97	412
1800	87	114	108	110	419
1900	93	107	112	119	431
2000	99	80	98	103	380
2100	80	85	85	60	310
2200	49	51	49	38	187
2300	32	44	31	23	130
24-HOUR TOTALS:					7220

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	715	544
P.M.	1430	446
DAILY	715	544

TRUCK PERCENTAGE 2.70 NAN 2.70

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	33	6286	706	34	116	30	2	7	6	0	0	0	0	0	0	195	7220

GENERATED BY SPS 5.0.45P

County: 99
Station: 0309
Description: SB I-95 OFF RAMP AT SW 7TH STREET
Start Date: 10/13/2015
Start Time: 0000

	Direction: S				
Time	1st	2nd	3rd	4th	Total
0000	86	70	72	62	290
0100	51	44	26	29	150
0200	30	17	14	33	94
0300	19	16	22	20	77
0400	24	28	47	61	160
0500	64	94	135	163	456
0600	199	277	284	290	1050
0700	323	355	323	335	1336
0800	418	468	445	429	1760
0900	404	424	373	402	1603
1000	378	369	369	359	1475
1100	315	353	336	357	1361
1200	323	338	321	326	1308
1300	329	312	326	330	1297
1400	314	312	339	399	1364
1500	339	354	411	449	1553
1600	464	412	425	407	1708
1700	398	389	353	368	1508
1800	381	424	435	448	1688
1900	406	381	324	326	1437
2000	282	267	228	224	1001
2100	194	141	140	130	605
2200	162	153	162	137	614
2300	113	146	124	100	483
24-Hour Totals:					24378

Peak Volume Information

	Hour	Volume
A.M.	800	1760
P.M.	1545	1750
Daily	800	1760

Generated by SPS 5.0.49P

County: 99
Station: 0309
Description: SB I-95 OFF RAMP AT SW 7TH STREET
Start Date: 10/14/2015
Start Time: 0000

Direction: S

Time	1st	2nd	3rd	4th	Total
0000	107	65	80	66	318
0100	45	39	32	24	140
0200	31	36	18	31	116
0300	13	13	34	26	86
0400	13	21	50	70	154
0500	57	95	127	199	478
0600	204	268	281	270	1023
0700	262	350	373	358	1343
0800	437	461	448	428	1774
0900	442	386	400	382	1610
1000	382	337	333	344	1396
1100	343	329	322	325	1319
1200	331	345	348	334	1358
1300	311	318	348	371	1348
1400	333	339	327	388	1387
1500	330	377	398	400	1505
1600	391	412	470	437	1710
1700	477	488	458	456	1879
1800	448	408	394	397	1647
1900	384	376	336	311	1407
2000	294	250	264	218	1026
2100	232	230	202	164	828
2200	192	165	158	141	656
2300	142	154	134	125	555
24-Hour Totals:					25063

Peak Volume Information

	Hour	Volume
A.M.	815	1779
P.M.	1700	1879
Daily	1700	1879

Generated by SPS 5.0.49P

County: 99
Station: 0309
Description: SB I-95 OFF RAMP AT SW 7TH STREET
Start Date: 10/15/2015
Start Time: 0000

	Direction: S				
Time	1st	2nd	3rd	4th	Total
0000	87	80	78	61	306
0100	50	36	45	28	159
0200	43	22	25	20	110
0300	32	25	27	26	110
0400	21	33	38	51	143
0500	63	80	143	179	465
0600	185	254	306	309	1054
0700	296	333	361	391	1381
0800	456	456	436	447	1795
0900	438	387	372	321	1518
1000	346	341	311	357	1355
1100	363	332	328	317	1340
1200	348	309	311	305	1273
1300	308	350	291	355	1304
1400	316	340	381	355	1392
1500	365	387	379	448	1579
1600	421	443	434	511	1809
1700	476	466	474	493	1909
1800	413	421	428	417	1679
1900	404	393	437	432	1666
2000	290	261	273	225	1049
2100	252	238	190	218	898
2200	209	196	199	203	807
2300	163	177	138	168	646
24-Hour Totals:					25747

Peak Volume Information

	Hour	Volume
A.M.	800	1795
P.M.	1645	1927
Daily	1645	1927

Generated by SPS 5.0.49P

County: 99
Station: 0305
Description: NB I-95 ON RAMP FROM SW 8TH STREET
Start Date: 10/13/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	60	44	47	43	194
0100	29	37	25	21	112
0200	31	20	18	17	86
0300	22	11	10	19	62
0400	15	17	27	36	95
0500	35	64	82	79	260
0600	154	200	222	249	825
0700	252	292	349	373	1266
0800	354	367	369	351	1441
0900	320	274	273	205	1072
1000	186	208	241	246	881
1100	186	233	218	234	871
1200	214	256	260	272	1002
1300	234	255	228	228	945
1400	269	297	281	304	1151
1500	312	330	369	347	1358
1600	254	270	252	288	1064
1700	277	223	270	319	1089
1800	214	275	260	226	975
1900	276	236	250	246	1008
2000	226	197	154	130	707
2100	140	143	137	111	531
2200	138	129	133	109	509
2300	109	80	100	65	354
24-Hour Totals:					17858

Peak Volume Information

	Hour	Volume
A.M.	745	1463
P.M.	1500	1358
Daily	745	1463

Generated by SPS 5.0.49P

County: 99
Station: 0305
Description: NB I-95 ON RAMP FROM SW 8TH STREET
Start Date: 10/14/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	63	50	35	26	174
0100	29	25	24	23	101
0200	23	24	24	11	82
0300	10	12	19	21	62
0400	14	22	20	31	87
0500	37	51	102	90	280
0600	152	197	211	228	788
0700	253	294	334	326	1207
0800	331	353	348	360	1392
0900	311	289	261	239	1100
1000	229	223	222	242	916
1100	215	274	230	214	933
1200	244	255	279	304	1082
1300	210	272	274	266	1022
1400	299	302	291	307	1199
1500	331	333	311	285	1260
1600	263	242	266	241	1012
1700	257	251	248	248	1004
1800	264	283	300	288	1135
1900	300	270	263	207	1040
2000	202	185	172	161	720
2100	140	163	172	139	614
2200	167	137	139	115	558
2300	131	106	102	81	420
24-Hour Totals:					18188

Peak Volume Information

	Hour	Volume
A.M.	800	1392
P.M.	1445	1282
Daily	800	1392

Generated by SPS 5.0.49P

County: 99
Station: 0305
Description: NB I-95 ON RAMP FROM SW 8TH STREET
Start Date: 10/15/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	77	84	57	50	268
0100	42	20	33	23	118
0200	34	26	20	14	94
0300	14	12	21	10	57
0400	19	20	23	24	86
0500	49	49	78	92	268
0600	145	199	241	243	828
0700	259	305	362	367	1293
0800	334	369	372	377	1452
0900	319	278	229	220	1046
1000	200	247	212	201	860
1100	224	246	255	251	976
1200	254	256	240	280	1030
1300	262	242	259	230	993
1400	302	308	316	323	1249
1500	288	353	374	334	1349
1600	277	271	285	268	1101
1700	284	281	255	296	1116
1800	263	334	316	291	1204
1900	321	309	313	239	1182
2000	238	238	201	184	861
2100	207	178	162	149	696
2200	164	156	144	165	629
2300	150	125	124	97	496
24-Hour Totals:					19252

Peak Volume Information

	Hour	Volume
A.M.	800	1452
P.M.	1500	1349
Daily	800	1452

Generated by SPS 5.0.49P

COUNTY: 87
STATION: 6359
DESCRIPTION: RAMP 87270505 FROM SB I-95 TO EB SR970, 200' S OF
START DATE: 08/04/2015
START TIME: 0000

DIRECTION: E

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	119	104	78	95	396
0100	74	64	70	53	261
0200	36	55	56	52	199
0300	44	29	25	42	140
0400	38	44	61	79	222
0500	82	107	169	173	531
0600	201	285	280	337	1103
0700	302	263	384	398	1347
0800	377	354	382	404	1517
0900	350	388	268	363	1369
1000	270	302	265	330	1167
1100	244	263	268	294	1069
1200	270	267	268	269	1074
1300	246	267	263	262	1038
1400	241	267	265	274	1047
1500	232	235	218	230	915
1600	203	244	246	270	963
1700	257	264	277	300	1098
1800	129	254	300	277	960
1900	222	271	179	260	932
2000	266	251	253	246	1016
2100	203	220	206	207	836
2200	210	179	172	191	752
2300	169	120	91	148	528
24-HOUR TOTALS:					20480

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	830	1524
P.M.	1700	1098
DAILY	830	1524

TRUCK PERCENTAGE 2.35 NAN 2.35

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	71	18470	1458	84	229	132	7	16	13	0	0	0	0	0	0	481	20480

GENERATED BY SPS 5.0.45P

COUNTY: 87
STATION: 6359
DESCRIPTION: RAMP 87270505 FROM SB I-95 TO EB SR970, 200' S OF
START DATE: 08/05/2015
START TIME: 0000

DIRECTION: E

TIME	1ST	2ND	3RD	4TH	TOTAL
0000	132	79	79	59	349
0100	57	54	41	25	177
0200	35	30	29	25	119
0300	26	25	30	21	102
0400	26	31	52	91	200
0500	69	107	141	162	479
0600	176	211	274	354	1015
0700	336	366	389	392	1483
0800	441	397	234	350	1422
0900	432	417	308	384	1541
1000	301	337	323	293	1254
1100	250	257	301	276	1084
1200	312	290	290	283	1175
1300	278	302	249	286	1115
1400	240	279	215	282	1016
1500	281	222	224	291	1018
1600	202	260	260	216	938
1700	276	282	304	290	1152
1800	311	284	292	312	1199
1900	282	289	288	261	1120
2000	266	264	231	273	1034
2100	221	202	207	218	848
2200	237	181	238	224	880
2300	175	143	139	116	573
24-HOUR TOTALS:					21293

PEAK VOLUME INFORMATION

	HOUR	VOLUME
A.M.	730	1619
P.M.	1800	1199
DAILY	730	1619

TRUCK PERCENTAGE 2.18 NAN 2.18

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	75	19289	1465	105	228	103	9	12	7	0	0	0	0	0	0	464	21293

GENERATED BY SPS 5.0.45P

County: 98
Station: 2001
Description: SB I-95 ON RAMP AT NW 2ND STREET
Start Date: 09/29/2015
Start Time: 0000

Direction: S

Time	1st	2nd	3rd	4th	Total
0000	16	13	11	10	50
0100	11	9	3	6	29
0200	4	1	8	1	14
0300	6	4	3	2	15
0400	3	6	6	7	22
0500	16	22	19	36	93
0600	37	43	76	99	255
0700	128	138	118	155	539
0800	207	164	152	204	727
0900	147	143	160	126	576
1000	142	132	128	101	503
1100	121	143	118	156	538
1200	139	147	150	157	593
1300	149	136	140	138	563
1400	174	147	138	177	636
1500	148	213	190	173	724
1600	252	268	289	275	1084
1700	311	325	336	345	1317
1800	318	291	304	232	1145
1900	269	146	107	89	611
2000	96	80	65	50	291
2100	55	70	49	56	230
2200	56	54	58	46	214
2300	26	27	32	23	108
24-Hour Totals:					10877

Peak Volume Information

	Hour	Volume
A.M.	800	727
P.M.	1715	1324
Daily	1715	1324

Generated by SPS 5.0.48P

County: 98
Station: 2001
Description: SB I-95 ON RAMP AT NW 2ND STREET
Start Date: 09/30/2015
Start Time: 0000

	Direction: S				
Time	1st	2nd	3rd	4th	Total
0000	22	25	16	15	78
0100	21	12	4	8	45
0200	9	7	5	6	27
0300	8	5	2	5	20
0400	4	2	7	7	20
0500	11	12	12	26	61
0600	32	59	78	115	284
0700	117	123	133	154	527
0800	170	184	154	172	680
0900	162	162	118	118	560
1000	131	109	122	121	483
1100	132	116	105	144	497
1200	124	173	109	136	542
1300	128	110	120	148	506
1400	174	167	163	121	625
1500	163	164	187	174	688
1600	198	215	262	309	984
1700	315	310	313	324	1262
1800	284	231	222	172	909
1900	143	118	114	89	464
2000	87	81	73	79	320
2100	108	70	62	67	307
2200	50	52	43	51	196
2300	54	43	25	20	142
24-Hour Totals:					10227

Peak Volume Information

	Hour	Volume
A.M.	800	680
P.M.	1700	1262
Daily	1700	1262

Generated by SPS 5.0.48P

County: 98
Station: 2001
Description: SB I-95 ON RAMP AT NW 2ND STREET
Start Date: 10/01/2015
Start Time: 0000

Direction: S

Time	1st	2nd	3rd	4th	Total
0000	36	29	23	15	103
0100	12	12	7	9	40
0200	9	9	5	3	26
0300	1	2	2	3	8
0400	7	3	9	7	26
0500	8	13	15	20	56
0600	43	50	60	107	260
0700	122	133	143	179	577
0800	169	227	190	206	792
0900	168	135	86	107	496
1000	119	96	124	116	455
1100	118	133	114	117	482
1200	141	102	137	125	505
1300	116	116	124	140	496
1400	182	150	172	173	677
1500	203	174	203	218	798
1600	266	305	223	284	1078
1700	314	324	288	295	1221
1800	255	203	182	161	801
1900	127	143	109	114	493
2000	121	99	77	83	380
2100	101	73	79	71	324
2200	70	52	57	54	233
2300	53	60	42	28	183
24-Hour Totals:					10510

Peak Volume Information

	Hour	Volume
A.M.	800	792
P.M.	1700	1221
Daily	1700	1221

Generated by SPS 5.0.48P

County: 98
Station: 2002
Description: NB I-95 OFF RAMP AT NW 2ND STREET
Start Date: 09/29/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	12	12	6	10	40
0100	1	8	5	1	15
0200	4	2	2	2	10
0300	4	3	4	4	15
0400	2	9	5	8	24
0500	8	12	30	55	105
0600	51	76	94	133	354
0700	152	153	167	162	634
0800	181	138	138	153	610
0900	140	146	146	117	549
1000	126	107	90	77	400
1100	72	65	66	67	270
1200	56	85	80	86	307
1300	84	82	85	61	312
1400	78	63	68	67	276
1500	65	70	69	73	277
1600	65	73	114	90	342
1700	93	96	93	109	391
1800	105	99	100	103	407
1900	70	32	47	38	187
2000	47	30	31	26	134
2100	25	28	26	31	110
2200	19	19	28	18	84
2300	18	19	12	15	64
24-Hour Totals:					5917

Peak Volume Information

	Hour	Volume
A.M.	715	663
P.M.	1745	413
Daily	715	663

Generated by SPS 5.0.48P

County: 98
Station: 2002
Description: NB I-95 OFF RAMP AT NW 2ND STREET
Start Date: 09/30/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	12	7	11	11	41
0100	3	7	3	3	16
0200	3	2	4	4	13
0300	3	1	1	4	9
0400	2	5	7	5	19
0500	9	19	27	40	95
0600	69	62	104	120	355
0700	159	151	175	197	682
0800	164	130	135	165	594
0900	145	135	146	104	530
1000	98	110	88	76	372
1100	75	64	66	73	278
1200	71	63	72	87	293
1300	88	78	78	83	327
1400	64	64	61	66	255
1500	61	74	99	85	319
1600	107	99	113	106	425
1700	109	89	119	135	452
1800	123	128	119	61	431
1900	59	53	50	47	209
2000	32	30	37	35	134
2100	29	29	32	28	118
2200	23	34	27	27	111
2300	23	29	8	17	80
24-Hour Totals:					6152

Peak Volume Information

	Hour	Volume
A.M.	715	687
P.M.	1730	505
Daily	715	687

Generated by SPS 5.0.48P

County: 98
Station: 2002
Description: NB I-95 OFF RAMP AT NW 2ND STREET
Start Date: 10/01/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	7	11	12	12	42
0100	6	4	3	2	15
0200	7	4	4	4	19
0300	2	3	2	1	8
0400	3	7	4	12	26
0500	12	14	30	39	95
0600	46	64	118	132	360
0700	147	127	165	181	620
0800	176	153	148	141	618
0900	154	129	116	121	520
1000	99	104	70	74	347
1100	73	64	67	66	270
1200	85	80	96	89	350
1300	72	69	62	79	282
1400	69	46	65	57	237
1500	61	77	108	76	322
1600	89	95	83	101	368
1700	87	120	111	116	434
1800	128	107	118	110	463
1900	52	48	57	48	205
2000	42	46	42	28	158
2100	37	31	37	25	130
2200	27	23	27	22	99
2300	23	16	17	17	73
24-Hour Totals:					6061

Peak Volume Information

	Hour	Volume
A.M.	730	675
P.M.	1715	475
Daily	730	675

Generated by SPS 5.0.48P

County: 98
Station: 2005
Description: SB I-95 OFF RAMP AT SW 25TH ROAD

Start Date: 09/29/2015
Start Time: 0000

	Direction: S				
Time	1st	2nd	3rd	4th	Total
0000	34	43	39	20	136
0100	15	16	17	7	55
0200	12	12	12	13	49
0300	7	9	9	7	32
0400	12	10	22	27	71
0500	33	44	81	131	289
0600	135	160	274	302	871
0700	335	432	429	362	1558
0800	377	428	428	421	1654
0900	445	484	422	403	1754
1000	388	339	317	329	1373
1100	287	326	287	288	1188
1200	257	308	307	297	1169
1300	291	310	320	310	1231
1400	309	327	375	361	1372
1500	330	379	437	363	1509
1600	467	483	499	321	1770
1700	390	359	401	395	1545
1800	439	400	426	455	1720
1900	448	375	410	456	1689
2000	259	217	169	148	793
2100	151	138	106	111	506
2200	123	98	129	107	457
2300	98	74	66	62	300
24-Hour Totals:					23091

Peak Volume Information

	Hour	Volume
A.M.	830	1778
P.M.	1545	1812
Daily	1545	1812

Generated by SPS 5.0.48P

County: 98
Station: 2005
Description: SB I-95 OFF RAMP AT SW 25TH ROAD
Start Date: 09/30/2015
Start Time: 0000

Direction: S

Time	1st	2nd	3rd	4th	Total
0000	36	32	28	28	124
0100	23	23	17	17	80
0200	13	17	9	9	48
0300	5	8	7	8	28
0400	10	10	29	21	70
0500	33	36	54	115	238
0600	145	237	293	327	1002
0700	354	397	383	373	1507
0800	414	442	484	447	1787
0900	495	445	456	418	1814
1000	372	364	346	358	1440
1100	279	334	289	303	1205
1200	300	305	310	340	1255
1300	311	339	344	347	1341
1400	347	392	417	428	1584
1500	399	358	355	439	1551
1600	391	473	514	502	1880
1700	519	519	530	489	2057
1800	500	553	540	563	2156
1900	364	347	295	307	1313
2000	227	218	229	197	871
2100	199	167	165	135	666
2200	147	129	125	107	508
2300	103	81	74	58	316
24-Hour Totals:					24841

Peak Volume Information

	Hour	Volume
A.M.	830	1871
P.M.	1800	2156
Daily	1800	2156

Generated by SPS 5.0.48P

County: 98
Station: 2005
Description: SB I-95 OFF RAMP AT SW 25TH ROAD
Start Date: 10/01/2015
Start Time: 0000

Direction: S

Time	1st	2nd	3rd	4th	Total
0000	64	46	36	49	195
0100	41	28	22	20	111
0200	10	24	12	14	60
0300	10	13	12	17	52
0400	13	13	23	27	76
0500	29	51	77	122	279
0600	137	219	316	336	1008
0700	381	446	427	366	1620
0800	413	447	500	428	1788
0900	472	440	441	417	1770
1000	400	334	347	334	1415
1100	299	358	344	348	1349
1200	328	309	351	344	1332
1300	316	318	309	388	1331
1400	352	351	408	433	1544
1500	454	419	426	486	1785
1600	468	499	449	439	1855
1700	439	537	540	537	2053
1800	518	550	527	525	2120
1900	365	324	303	264	1256
2000	259	211	233	191	894
2100	149	183	147	161	640
2200	113	143	156	139	551
2300	98	99	95	79	371
24-Hour Totals:					25455

Peak Volume Information

	Hour	Volume
A.M.	815	1847
P.M.	1730	2145
Daily	1730	2145

Generated by SPS 5.0.48P

County: 98
Station: 2006
Description: NB I-95 ON RAMP AT SW 25TH ROAD
Start Date: 09/29/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	27	17	21	13	78
0100	15	14	24	9	62
0200	11	6	6	6	29
0300	5	5	4	2	16
0400	5	7	10	14	36
0500	26	16	50	64	156
0600	79	97	159	200	535
0700	259	318	395	413	1385
0800	422	439	450	460	1771
0900	407	339	286	276	1308
1000	293	276	266	252	1087
1100	242	259	270	259	1030
1200	246	271	257	246	1020
1300	285	251	234	232	1002
1400	289	260	280	258	1087
1500	314	341	350	320	1325
1600	297	289	271	276	1133
1700	221	258	353	390	1222
1800	307	322	311	299	1239
1900	247	243	254	221	965
2000	208	172	138	109	627
2100	117	113	114	91	435
2200	118	80	79	56	333
2300	84	68	57	36	245
24-Hour Totals:					18126

Peak Volume Information

	Hour	Volume
A.M.	800	1771
P.M.	1730	1372
Daily	800	1771

Generated by SPS 5.0.48P

County: 98
Station: 2006
Description: NB I-95 ON RAMP AT SW 25TH ROAD
Start Date: 09/30/2015
Start Time: 0000

	Direction: N				
Time	1st	2nd	3rd	4th	Total
0000	31	27	20	18	96
0100	15	18	17	15	65
0200	11	18	6	10	45
0300	11	3	8	8	30
0400	6	4	10	9	29
0500	22	23	40	62	147
0600	89	114	163	208	574
0700	246	326	385	429	1386
0800	444	457	435	475	1811
0900	433	416	335	297	1481
1000	258	272	244	263	1037
1100	228	231	247	225	931
1200	256	251	235	265	1007
1300	274	256	256	273	1059
1400	210	305	267	303	1085
1500	310	344	358	337	1349
1600	306	254	274	268	1102
1700	263	309	333	366	1271
1800	362	300	339	284	1285
1900	248	265	243	216	972
2000	208	180	196	153	737
2100	141	138	105	115	499
2200	99	85	80	73	337
2300	101	63	55	53	272
24-Hour Totals:					18607

Peak Volume Information

	Hour	Volume
A.M.	800	1811
P.M.	1715	1370
Daily	800	1811

Generated by SPS 5.0.48P

County: 98
Station: 2006
Description: NB I-95 ON RAMP AT SW 25TH ROAD
Start Date: 10/01/2015
Start Time: 0000

Direction: N

Time	1st	2nd	3rd	4th	Total
0000	45	36	43	23	147
0100	30	22	10	14	76
0200	4	18	13	3	38
0300	10	7	9	7	33
0400	14	8	15	19	56
0500	17	35	34	65	151
0600	82	99	163	226	570
0700	257	310	345	429	1341
0800	429	449	457	471	1806
0900	415	383	337	296	1431
1000	294	305	260	259	1118
1100	261	232	259	237	989
1200	257	264	273	255	1049
1300	252	289	266	246	1053
1400	290	249	316	289	1144
1500	314	329	380	384	1407
1600	376	403	328	270	1377
1700	333	334	363	335	1365
1800	365	378	322	270	1335
1900	277	252	265	247	1041
2000	211	175	152	165	703
2100	102	97	93	84	376
2200	70	79	55	65	269
2300	100	81	68	61	310
24-Hour Totals:					19185

Peak Volume Information

	Hour	Volume
A.M.	800	1806
P.M.	1530	1543
Daily	800	1806

Generated by SPS 5.0.48P

Appendix B: Existing AM and PM VISSIM Peak Period Volumes

SW 7th and SW 8th Street 2015 Existing Conditions - VISSIM AM Peak Period Volume Input

			70%	70%	70%	80%	80%	90%	95%	100%	105%	100%	80%	75%	65%	60%	65%	60%	60%	55%
Input Name	**Link Number**	**Pk-Hour**	**0-900**	**900-1800**	**1800-2700**	**2700-3600**	**3600-4500**	**4500-5400**	**5400-6300**	**6300-7200**	**7200-8100**	**8100-9000**	**9000-9900**	**9900-10800**	**10800-11700**	**11700-12600**	**12600-13500**	**13500-14400**	**14400-15300**	**15300-16200**
8th Street EB	71	1469	1028	1028	1028	1175	1175	1322	1396	1469	1542	1469	1175	1102	955	881	955	881	881	808
8th Avenue NB	76	199	139	139	139	159	159	179	189	199	209	199	159	149	129	119	129	119	119	109
8th Avenue SB	102	309	216	216	216	247	247	278	294	309	324	309	247	232	201	185	201	185	185	170
5th Avenue NB	99	522	365	365	365	418	418	470	496	522	548	522	418	392	339	313	339	313	313	287
5th Avenue SB	105	80	56	56	56	64	64	72	76	80	84	80	64	60	52	48	52	48	48	44
4th Avenue SB	45	236	165	165	165	189	189	212	224	236	248	236	189	177	153	142	153	142	142	130
3rd Avenue NB	64	316	221	221	221	253	253	284	300	316	332	316	253	237	205	190	205	190	190	174
2nd Avenue NB	86	1000	700	700	700	800	800	900	950	1000	1050	1000	800	750	650	600	650	600	600	550
2nd Avenue SB	78	742	519	519	519	594	594	668	705	742	779	742	594	557	482	445	482	445	445	408
S Miami Avenue NB	96	682	477	477	477	546	546	614	648	682	716	682	546	512	443	409	443	409	409	375
1st Avenue SB	90	936	655	655	655	749	749	842	889	936	983	936	749	702	608	562	608	562	562	515
8th Street WB	92	624	437	437	437	499	499	562	593	624	655	624	499	468	406	374	406	374	374	343
I-95 NB	2	3164	2215	2215	2215	2531	2531	2848	3006	3164	3322	3164	2531	2373	2057	1898	2057	1898	1898	1740
Rickenbacker Causeway NB	3	846	592	592	592	677	677	761	804	846	888	846	677	635	550	508	550	508	508	465
SW 25th Road NB	4	847	593	593	593	678	678	762	805	847	889	847	678	635	551	508	551	508	508	466
Downtown Distributor SB	25	984	689	689	689	787	787	886	935	984	1033	984	787	738	640	590	640	590	590	541
Downtown Distributor NB	36	420	294	294	294	336	336	378	399	420	441	420	336	315	273	252	273	252	252	231
NW 2nd Street SB	37	371	260	260	260	297	297	334	352	371	390	371	297	278	241	223	241	223	223	204
I-95 SB	54	5495	3847	3847	3847	4396	4396	4946	5220	5495	5770	5495	4396	4121	3572	3297	3572	3297	3297	3022

SW 7th and SW 8th Street 2015 Existing Conditions - VISSIM PM Peak Period Volume Input

Input Name	Link Number	Pk-Hour	60% 0-900	60% 900-1800	60% 1800-2700	70% 2700-3600	70% 3600-4500	80% 4500-5400	95% 5400-6300	100% 6300-7200	105% 7200-8100	100% 8100-9000	85% 9000-9900	80% 9900-10800	70% 10800-11700	65% 11700-12600	70% 12600-13500	65% 13500-14400	65% 14400-15300	60% 15300-16200
8th Street EB	71	1254	752	752	752	878	878	1003	1191	1254	1317	1254	1066	1003	878	815	878	815	815	752
8th Avenue NB	76	149	89	89	89	104	104	119	142	149	156	149	127	119	104	97	104	97	97	89
8th Avenue SB	102	241	145	145	145	169	169	193	229	241	253	241	205	193	169	157	169	157	157	145
5th Avenue NB	99	415	249	249	249	291	291	332	394	415	436	415	353	332	291	270	291	270	270	249
5th Avenue SB	105	80	48	48	48	56	56	64	76	80	84	80	68	64	56	52	56	52	52	48
4th Avenue SB	45	279	167	167	167	195	195	223	265	279	293	279	237	223	195	181	195	181	181	167
3rd Avenue NB	64	484	290	290	290	339	339	387	460	484	508	484	411	387	339	315	339	315	315	290
2nd Avenue NB	86	973	584	584	584	681	681	778	924	973	1022	973	827	778	681	632	681	632	632	584
2nd Avenue SB	78	795	477	477	477	557	557	636	755	795	835	795	676	636	557	517	557	517	517	477
S Miami Avenue NB	96	754	452	452	452	528	528	603	716	754	792	754	641	603	528	490	528	490	490	452
1st Avenue SB	90	954	572	572	572	668	668	763	906	954	1002	954	811	763	668	620	668	620	620	572
8th Street WB	92	1133	680	680	680	793	793	906	1076	1133	1190	1133	963	906	793	736	793	736	736	680
I-95 NB	2	1782	1069	1069	1069	1247	1247	1426	1693	1782	1871	1782	1515	1426	1247	1158	1247	1158	1158	1069
Rickenbacker Causeway NB	3	511	307	307	307	358	358	409	485	511	537	511	434	409	358	332	358	332	332	307
SW 25th Road NB	4	511	307	307	307	358	358	409	485	511	537	511	434	409	358	332	358	332	332	307
Downtown Distributor SB	25	1152	691	691	691	806	806	922	1094	1152	1210	1152	979	922	806	749	806	749	749	691
Downtown Distributor NB	36	2500	1500	1500	1500	1750	1750	2000	2375	2500	2625	2500	2125	2000	1750	1625	1750	1625	1625	1500
NW 2nd Street SB	37	726	436	436	436	508	508	581	690	726	762	726	617	581	508	472	508	472	472	436
I-95 SB	54	4845	2907	2907	2907	3392	3392	3876	4603	4845	5087	4845	4118	3876	3392	3149	3392	3149	3149	2907

Appendix C: Traffic Signal Timing Plans

TOD Schedule Report
for 2240: SW 1 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2240	SW 1 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	-	-	-	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	5 - 5 - 5	12 - 12 - 12	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	0 - 45 - 45	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	5 - 5 - 5	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	25 - 25 - 25	75 - 75 - 70	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-----8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 -	5 -	6 -	7 -	8 SBT	Ring Offset	Offset
	1	120	0	53	0	0	0	0	0	55	0	34
	3	80	0	48	0	0	0	0	0	20	0	49
	4	70	0	38	0	0	0	0	0	20	0	35
	6	110	0	47	0	0	0	0	0	51	0	71
	7	130	0	49	0	0	0	0	0	69	0	126
	8	120	0	53	0	0	0	0	0	55	0	83
	9	90	0	49	0	0	0	0	0	29	0	11
	18	80	0	48	0	0	0	0	0	20	0	0
	19	90	0	58	0	0	0	0	0	20	0	0
	20	110	0	78	0	0	0	0	0	20	0	0
	21	100	0	68	0	0	0	0	0	20	0	0
	22	65	0	33	0	0	0	0	0	20	0	8

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	M T W Th F
0330	Free	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

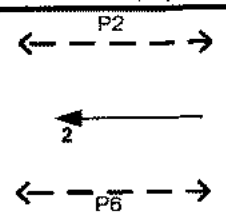
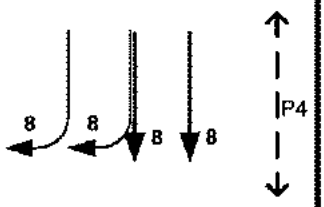
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

	Direction	WB		EB		NB		SB		Ped Heads			Movements/Display/Actuation
Timing Phases	Head No.	2						8		P2	P4	P6	
(2) WB SW 7 ST	Dwell	G						R		W/F	DW	W/F	
	Clear to 8	Y						R		DW	DW	DW	
RECALL													
(8) SW 1 Av	Dwell	R						G		DW	W/F	DW	
	Clear to 2	R						Y		DW	DW	DW	
RECALL													
	Dwell												
	Clear to												
	Dwell												
	Clear to												
	Dwell												
	Clear to												
	Dwell												
	Clear to												
Flashing Operation		FY						FR					Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date			
Mario L. Hernandez	4/20/11	**SW 1 Av & SW 7 St**		
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	4/21/11	Date 04/26/2011 By HPE	5	2240

QuadPPConcPeds

TOD Schedule Report
for 2241: SW 2 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2241	SW 2 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	NBL	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	1 - 1 - 1	35 - 25 - 25	0 - 60 - 60	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	10 - 8 - 8	7 - 7 - 7	1 - 1 - 1	25 - 15 - 15	75 - 75 - 75	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 NBL	7 - 7 - 7	18 - 18 - 18	5 - 5 - 5	2 - 2 - 2	15 - 15 - 15	30 - 30 - 30	4	0
8 SBT	7 - 7 - 7	10 - 8 - 8	7 - 7 - 7	1 - 1 - 1	25 - 15 - 15	60 - 60 - 60	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4--78
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 NBT	5 -	6 -	7 NBL	8 SBT	Ring Offset	Offset
	1	120	0	54	0	54	0	0	26	24	0	46
	3	80	0	44	0	24	0	0	6	14	0	46
	4	70	0	31	0	27	0	0	9	14	0	39
	6	110	0	44	0	54	0	0	9	41	0	77
	7	130	0	54	0	64	0	0	26	34	0	25
	8	120	0	54	0	54	0	0	10	40	0	93
	9	90	0	45	0	33	0	0	9	20	0	24
	18	80	0	34	0	34	0	0	12	18	0	3
	19	90	0	42	0	36	0	0	13	19	0	2
	20	110	0	59	0	39	0	0	14	21	0	23
	21	100	0	51	0	37	0	0	12	21	0	24

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

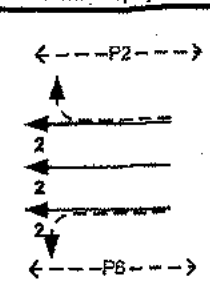
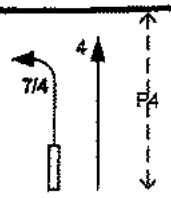
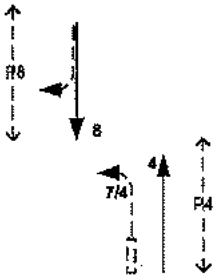
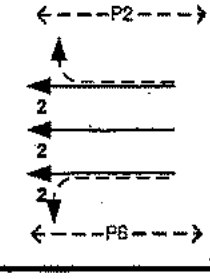
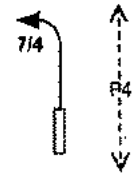
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	Head No.	WB 2	NB 7/4	NB 4	SB 8	Ped Heads P2	Ped Heads P4	Ped Heads P6	Ped Heads P8	Movements/Display/Actuation
(2) WBT SW 7 ST		Dwell	G	R	R	R	W/F	DW	W/F	DW	
RECALL	Clear to	(7+4)	Y	R	R	R	DW	DW	DW	DW	
		(4+8)	Y	R	R	R	DW	DW	DW	DW	
		P/E	Y	R	R	R	DW	DW	DW	DW	
(7+4) NBLT+ NBT SW 2 Av		Dwell	R	<G/G	G	R	DW	W/F	DW	DW	
ACTUATED	Clear to	(4+8)	R	<Y/G	G	R	DW	DW	DW	DW	
		P/E	R	<Y/Y	Y	R	DW	DW	DW	DW	
(4+8) NBT+SBT SW 2 Av		Dwell	R	G	G	G	DW	W/F	DW	W/F	
RECALL	Clear to	(2)	R	Y	Y	Y	DW	DW	DW	DW	
		P/E	R	Y	Y	G	DW	DW	DW	DW	
BRIDGE P/E CLEAR		Dwell	R	R	R	G	DW	DW	DW	DW	
	Clear to	Dwell 1	R	R	R	Y	DW	DW	DW	DW	
		Dwell 2	R	R	R	Y	DW	DW	DW	DW	
		(4+8)	R	R	R	Y	DW	DW	DW	DW	
P/E DWELL 1 WBT SW 7 ST		Dwell	G	R	R	R	W/F	DW	W/F	DW	
RECALL	Clear to	Dwell 2	Y	R	R	R	DW	DW	DW	DW	
		(4+8)	Y	R	R	R	DW	DW	DW	DW	
P/E DWELL 2 NBLT SW 2 Av		Dwell	R	<G/R	R	R	DW	W/F	DW	DW	
ACTUATED	Clear to	Dwell 1	R	<Y/R	R	R	DW	DW	DW	DW	
		(4+8)	R	<Y/R	R	R	DW	DW	DW	DW	
Flashing Operation			FY	FR	FR	FR					Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	SW 2 Av & SW 7 St		
Mario L. Hernandez	9/6/2012			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	12/3/12	Date / By	10	2241

TOD Schedule Report
for 2242: SW 8 Av&SW 7 St

Print Date: 1/25/2014

Print Time: 8:04 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2242	SW 8 Av&SW 7 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
		Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2	WBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	1 - 1 - 1	54 - 54 - 54	0 - 54 - 54	4	2
3	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4	NBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	41 - 41 - 41	51 - 51 - 51	4	2
5	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	SBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	41 - 41 - 41	51 - 51 - 51	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4---8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 NBT	5 -	6 -	7 -	8 SBT	Ring Offset	Offset
	2	90	0	53	0	25	0	0	0	25	0	32
	3	90	0	34	0	44	0	0	0	44	0	52
	4	100	0	44	0	44	0	0	0	44	0	50
	5	90	0	53	0	25	0	0	0	25	0	63
	7	120	0	60	0	48	0	0	0	48	0	38
	8	100	0	49	0	39	0	0	0	39	0	54
	11	120	0	69	0	39	0	0	0	39	0	73
	13	100	0	60	0	28	0	0	0	28	0	32
	15	90	0	50	0	28	0	0	0	28	0	72
	18	90	0	40	0	38	0	0	0	38	0	75
	19	100	0	56	0	32	0	0	0	32	0	89
	20	120	0	68	0	40	0	0	0	40	0	45
	21	115	0	78	0	25	0	0	0	25	0	24
	24	120	0	83	0	25	0	0	0	25	0	10
	25	120	0	83	0	25	0	0	0	25	0	10
	26	120	0	83	0	25	0	0	0	25	0	10
	27	120	0	83	0	25	0	0	0	25	0	10
	28	120	0	83	0	25	0	0	0	25	0	10
	29	120	0	83	0	25	0	0	0	25	0	10

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	3	M T W Th F
0600	18	Su S
0700	4	M T W Th F
0800	19	Su S
0915	5	M T W Th F
1100	7	M T W Th F
1100	20	Su S
1330	8	M T W Th F
1530	11	M T W Th F
1600	21	Su S
1930	13	M T W Th F
2030	15	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0700	TOD OUTPUTS	--------	M T W ThF
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

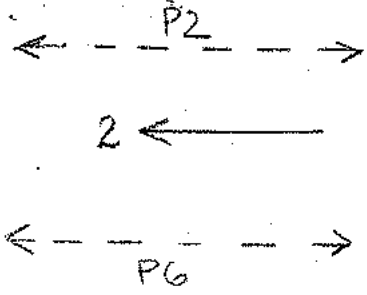
SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER											
	INT		2		4				8	P2	P4	P6	P8
	R/W		G		R				R	W	DW	W	DW
	PED. CL.		G		R				R	FD_W	DW	FD_W	DW
	TO 4+8		Y		R				R	DW	DW	DW	DW
	CLEAR												
	R/W		R		G				G	DW	W	DW	W
	PED. CL.		R		G				G	DW	FD_W	DW	FD_W
	TO 2		R		Y				Y	DW	DW	DW	DW
	CLEAR												
	R/W												
	PED. CL.												
	TO												
	CLEAR												
	R/W												
	PED. CL.												
	TO												
	CLEAR												
			Y		R				R				

$\phi 2$ (2)

WB
SW 7 ST

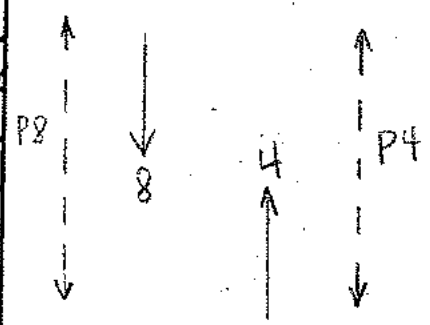
(RECALL)



ϕ(4+8)

N/S
SW 8 AV

(RECALL)



Drawn: H. HERNANDEZ	Date: 8/21/96	METROPOLITAN DADE COUNTY DEPARTMENT OF TRAFFIC AND TRANSPORTATION	
Check: E Hu	Date: 8/21/96	SW 8 AV & 7 ST	ASSET NO. 2242
Division Engineer	Date		
Placed in Service Date: 9/4/96 By:			Phasing Number: 4

TOD Schedule Report
for 2244: S Miami Av&S 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2244	S Miami Av&S 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	NBT	-	EBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	50 - 50 - 50	70 - 70 - 70	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	7 - 7 - 7	7 - 7 - 7	1 - 1 - 1	50 - 70 - 70	80 - 80 - 80	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 NBT	3 -	4 EBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	32	0	76	0	0	0	0	0	89
	3	80	0	42	0	26	0	0	0	0	0	76
	4	70	0	19	0	39	0	0	0	0	0	58
	6	110	0	27	0	71	0	0	0	0	0	11
	7	130	0	32	0	86	0	0	0	0	0	95
	8	120	0	32	0	76	0	0	0	0	0	107
	9	90	0	32	0	46	0	0	0	0	0	80
	18	80	0	29	0	39	0	0	0	0	0	5
	19	90	0	29	0	49	0	0	0	0	0	69
	20	110	0	44	0	54	0	0	0	0	0	109
	21	100	0	39	0	49	0	0	0	0	0	5

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	M T W Th F
0330	Free	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

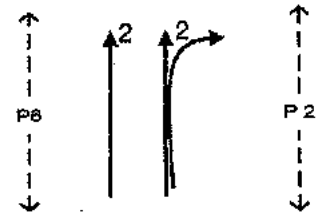
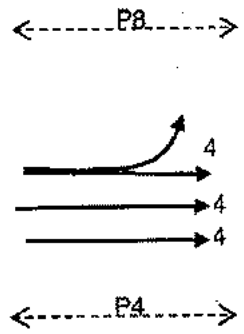
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	SB			NB			WB			EB			Ped Heads				Movements/Display/Actuation
	Head No.				2						4			P2	P4	P6	P8	
(2)	Dwell				G						R			W/F	DW	W/F	DW	
NBT	4				Y						R			DW	DW	DW	DW	
S. Miami. Av	clear to																	
RECALL																		
(4)	Dwell				R						G			DW	W/F	DW	W/F	
EBT	2				R						Y			DW	DW	DW	DW	
S 8 St	clear to																	
RECALL																		
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
Flashing Operation					FR						FR							Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	S.MIAMI Av & S 8 St		
Mario L. Hernandez	10/22/2012			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	10/22/12	Date / By	5	2244

QuadPPConcPeds

TOD Schedule Report
for 2245: SW 1 Av E&SW 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2245	SW 1 Av E&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	EBT	-	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk (Phase Bank 1 2 3)	Don't Walk (1 2 3)	Min Initial (1 2 3)	Veh Ext (1 2 3)	Max Limit (1 2 3)	Max 2 (1 2 3)	Yellow	Red
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	70 - 70 - 70	70 - 70 - 70	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 SBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	45 - 45 - 45	85 - 85 - 85	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 EBT	3 -	4 SBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	83	0	25	0	0	0	0	0	46
	3	80	0	44	0	24	0	0	0	0	0	50
	4	70	0	37	0	21	0	0	0	0	0	9
	6	110	0	58	0	40	0	0	0	0	0	61
	7	130	0	74	0	44	0	0	0	0	0	35
	8	120	0	64	0	44	0	0	0	0	0	51
	9	90	0	39	0	39	0	0	0	0	0	18
	18	80	0	43	0	25	0	0	0	0	0	23
	19	90	0	53	0	25	0	0	0	0	0	21
	20	110	0	73	0	25	0	0	0	0	0	48
	21	100	0	63	0	25	0	0	0	0	0	44

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

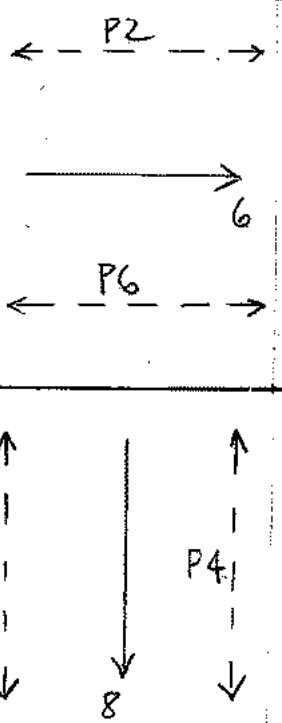
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER															
	INT					6		8				P2	P4	P6	P8		
	R/W					G		R				W	DW	W	DW		
	PED CL					G		R				FD_W	DW	FD_W	DW		
ϕ2 (6) EB SW 8 ST (RECALL)	TO ϕH					Y		R				DW	DW	DW	DW		
	CLEAR																
ϕ4 (8) SB SW 1 AV (RECALL)	R/W					R		G				DW	W	DW	W		
	PED CL					R		G				DW	FD_W	DW	FD_W		
	TO ϕ2					R		Y				DW	DW	DW	DW		
	CLEAR																
	R/W																
	TO																
	CLEAR																
	R/W																
	TO																
FLASH. OPER.	CLEAR					Y		R									



Drawn	Date
H. HERNANDEZ	12/13/95
Check	**Date**
F. PRATS	12/13/95
Division Engineer	**Date**

METROPOLITAN DADE COUNTY
DEPARTMENT OF PUBLIC WORKS

ASSET NO: 2245

SW 1 AV & 8 ST (E)

Placed in Service		Phasing Number
Date: EARLY '92	By:	5

TOD Schedule Report
for 2246: SW 2 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2246	SW 2 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
SBL	NBT	-	EBT	-	SBT	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
		Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	1 - 1 - 1	10 - 5 - 5	28 - 28 - 28	4	0
2	NBT	4 - 4 - 4	8 - 8 - 8	4 - 4 - 4	1 - 1 - 1	35 - 19 - 19	0 - 72 - 72	4	2.3
3	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4	EBT	7 - 7 - 7	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	40 - 24 - 24	88 - 88 - 88	4	2.3
5	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6	SBT	4 - 4 - 4	8 - 8 - 8	4 - 4 - 4	1 - 1 - 1	35 - 19 - 19	0 - 72 - 72	4	2.3
7	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12-4-6--
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 SBL	2 NBT	3 -	4 EBT	5 -	6 SBT	7 -	8 -	Ring Offset	Offset
	1	120	8	32	0	64	0	44	0	0	0	76
	3	80	13	20	0	31	0	37	0	0	0	10
	4	70	7	23	0	24	0	34	0	0	0	25
	6	110	8	22	0	64	0	34	0	0	0	100
	7	130	11	29	0	74	0	44	0	0	0	95
	8	120	11	35	0	58	0	50	0	0	0	96
	9	90	7	33	0	34	0	44	0	0	0	51
	18	80	7	13	0	44	0	24	0	0	0	39
	19	90	7	23	0	44	0	34	0	0	0	40
	20	110	8	27	0	59	0	39	0	0	0	68
	21	100	8	17	0	59	0	29	0	0	0	59
	22	65	6	15	0	28	0	25	0	0	0	58
	23	65	7	20	0	22	0	31	0	0	0	50

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

	Direction	SB		NB	EB											Ped Heads				Movements/Display/Actuation
Timing Phases	Head No.	1/6	6	2	4											2	6	4	8	
LEAD	Dwell	↓/G	G	R	R											DW	W/F	DW	DW	
1+6	clear to 2+6	↓/G	G	R	R											DW	DW	DW	DW	
SB																				
SW 2 AV																				
RECALL																				
	Dwell	G	G	G	R											W/F	W/F	DW	DW	
2+6	clear to 4	Y	Y	Y	R											DW	DW	DW	DW	
N/S																				
SW 2 AV																				
RECALL																				
	Dwell	R	R	R	G											DW	DW	W/F	W/F	
4	clear to 1+6	R	R	R	Y											DW	DW	DW	DW	
EB																				
SW 8 ST																				
RECALL																				
LAG	Dwell	G	G	G	R											W/F	W/F	DW	DW	
2+6	clear to 1+6	G	G	Y	R											DW	DW	DW	DW	
N/S																				
SW 2 AV																				
RECALL																				
	Dwell	↓/G	G	R	R											DW	W/F	DW	DW	
1+6	clear to 4	↓/Y	Y	R	R											DW	DW	DW	DW	
SB																				
SW 2 AV																				
RECALL																				
	Dwell	R	R	R	G											DW	DW	W/F	W/F	
4	clear to 2+6	R	R	R	Y											DW	DW	DW	DW	
EB																				
SW 8 ST																				
RECALL																				
Flashing Operation		FY	FY	FY	FR															Page 1 of 1

Miami-Dade County Public Works Department

Drawn H. FRANCILLON	Date 2/18/10	SW 2 AV & 8 ST		
Checked H. HERNANDEZ	Date 2/18/10	Placed in Service	Phasing No.	Asset Number
		Date 2/26/04 By SHOP	6	2246

Blank16

TOD Schedule Report
for 2247: SW 8 Av&SW 8 St

Print Date: 1/18/2014

Print Time: 8:03 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2247	SW 8 Av&SW 8 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	SBL	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk Phase Bank 1 2 3	Don't Walk 1 2 3	Min Initial 1 2 3	Veh Ext 1 2 3	Max Limit 1 2 3	Max 2 1 2 3	Yellow	Red
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
3 SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	12 - 12 - 12	25 - 17 - 17	3.4	0
4 NBT	7 - 7 - 7	12 - 12 - 12	7 - 7 - 7	2.5 - 2.5 - 2.5	20 - 20 - 20	55 - 55 - 55	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	7 - 7 - 7	12 - 12 - 12	7 - 7 - 7	1 - 1 - 1	45 - 45 - 45	0 - 45 - 45	4.3	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	7 - 7 - 7	12 - 12 - 12	7 - 7 - 7	1 - 1 - 1	20 - 20 - 20	55 - 55 - 55	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	--34-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 -	3 SBL	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset
	2	90	0	0	9	19	0	47	0	31	0	30
	3	90	0	0	12	19	0	44	0	34	0	65
	4	100	0	0	17	24	0	44	0	44	0	50
	5	90	0	0	9	19	0	47	0	31	0	56
	7	120	0	0	13	20	0	72	0	36	0	43
	8	100	0	0	12	19	0	54	0	34	0	52
	11	120	0	0	13	20	0	72	0	36	0	37
	13	100	0	0	12	27	0	46	0	42	0	76
	15	90	0	0	9	19	0	47	0	31	0	81
	18	90	0	0	10	34	0	31	0	47	0	62
	19	100	0	0	15	28	0	42	0	46	0	74
	20	120	0	0	22	24	0	59	0	49	0	24
	21	115	0	0	12	21	0	67	0	36	0	20
	24	120	0	0	12	21	0	72	0	36	0	7
	25	120	0	0	12	21	0	72	0	36	0	7
	26	120	0	0	12	21	0	72	0	36	0	7
	27	120	0	0	12	21	0	72	0	36	0	7
	28	130	0	0	12	21	0	82	0	36	0	7
	29	130	0	0	12	21	0	82	0	36	0	7

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	3	M T W Th F
0600	18	Su S
0700	4	M T W Th F
0800	19	Su S
0915	5	M T W Th F
1100	7	M T W Th F
1100	20	Su S
1330	8	M T W Th F
1530	11	M T W Th F
1600	21	Su S
1930	13	M T W Th F
2030	15	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0900	TOD OUTPUTS	--------	Su S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0700	TOD OUTPUTS	--------	M T W ThF
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF

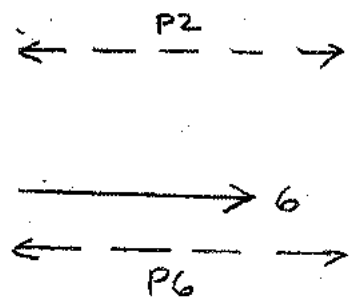
*** Settings**

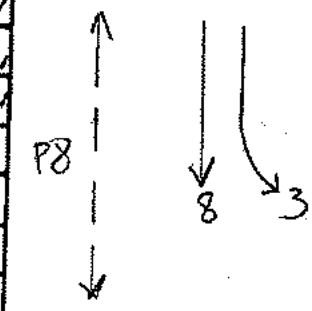
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

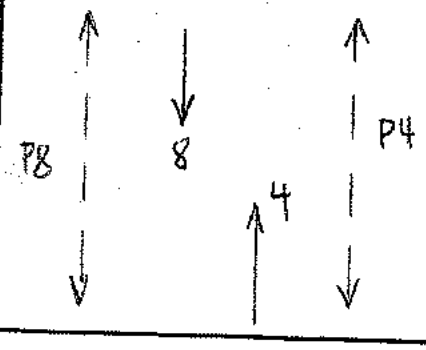
No Calendar Defined/Enabled

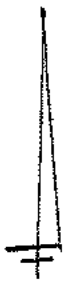
SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER									
	INT	3	4	6	8	P2	P4	P6	P8
ϕ6 EB SW 8 ST (RECALL)	R/W	R	R	G	R	W	DW	W	DW
	PED. CL.	R	R	G	R	FD_W	DW	FD_W	DW
	TO 3+8	R	R	Y	R	DW	DW	DW	DW
	CLEAR								
ϕ(3+8) SB SW 8 AV (RECALL)	R/W	G/←	R	R	G	DW	DW	DW	W
	PED. CL.	G/←	R	R	G	DW	DW	DW	FD_W
	TO 4+8	G/↑	R	R	G	DW	DW	DW	DW
	CLEAR								
ϕ(4+8) N/S SW AV (RECALL)	R/W	G	G	R	G	DW	W	DW	W
	PED. CL.	G	G	R	G	DW	FD_W	DW	FD_W
	TO 6	Y	Y	R	Y	DW	DW	DW	DW
	CLEAR								
	R/W								
	PED. CL.								
	TO								
	CLEAR								
FLASH. OPER →		R	R	Y	R				









Drawn H. HERNANDEZ	Date 1/13/94	METROPOLITAN DADE COUNTY DEPARTMENT OF TRAFFIC AND TRANSPORTATION
Check	Date 1/13/94	ASSET NO. 2247
Division Engineer	Date	SW 8 AV & 8 ST
Placed In Service Date: 1/13/94 - MARCH 1994 By:		Phasing Number 4

TOD Schedule Report
for 3326: SW 3 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:14 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3326	SW 3 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	-	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk Phase Bank 1 2 3	Don't Walk 1 2 3	Min Initial 1 2 3	Veh Ext 1 2 3	Max Limit 1 2 3	Max 2 1 2 3	Yellow	Red
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 43 - 43	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	7 - 7 - 7	11 - 11 - 11	7 - 7 - 7	2.5 - 2.5 - 2.5	45 - 27 - 27	0 - 43 - 43	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 43 - 43	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	---4-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 -	3 -	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset
	1	120	0	0	0	19	0	89	0	19	0	47
	3	80	0	0	0	13	0	55	0	13	0	26
	4	70	0	0	0	13	0	45	0	13	0	59
	6	110	0	0	0	18	0	80	0	18	0	80
	7	130	0	0	0	36	0	82	0	36	0	58
	8	120	0	0	0	34	0	74	0	34	0	57
	9	90	0	0	0	18	0	60	0	18	0	8
	18	80	0	0	0	17	0	51	0	17	0	0
	19	90	0	0	0	17	0	61	0	17	0	0
	20	110	0	0	0	17	0	81	0	17	0	0
	21	100	0	0	0	24	0	64	0	24	0	0

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	VEH RECALL	8---4---	M T W ThF
0200	VEH RECALL	--------	M T W ThF
0600	VEH RECALL	8---4---	M T W ThF
0730	VEH RECALL	--------	M T W ThF
0730	VEH MAX RECALL	8---4---	M T W ThF
2000	VEH MAX RECALL	--------	M T W ThF
2000	VEH RECALL	8---4---	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	VEH RECALL	8---4---	M T W ThF
0000	VEH RECALL	8---4---	Su S
0200	VEH RECALL	--------	M T W ThF
0330	VEH RECALL	--------	Su S
0600	VEH RECALL	8---4---	Su S
0600	VEH RECALL	8---4---	M T W ThF
0730	VEH RECALL	--------	M T W ThF
0730	VEH MAX RECALL	8---4---	M T W ThF
1000	VEH RECALL	--------	Su S
1000	VEH MAX RECALL	8---4---	Su S
1900	VEH MAX RECALL	--------	Su S
1900	VEH RECALL	8---4---	Su S
2000	VEH MAX RECALL	--------	M T W ThF
2000	VEH RECALL	8---4---	M T W ThF

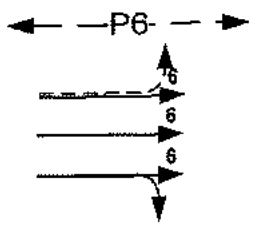
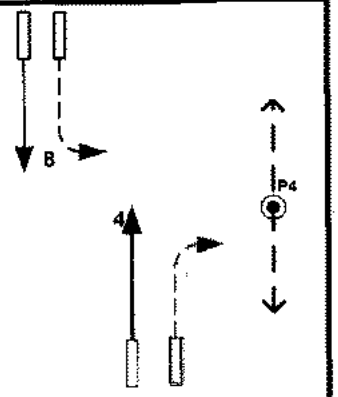
No Calendar Defined/Enabled

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

SIGNAL OPERATING PLAN

N

	Direction	EB	NB	SB		Ped Heads		
Timing Phases	Head No.	6	4	8		P4	P6	Movements/Display/Actuation
(6)	Dwell	G	R	R		DW	W/F	
EB	4+8	Y	R	R		DW	DW	
SW 8 ST	Clear to							
RECALL								
(4 + 8)	Dwell	R	G	G		W/F	DW	
NB/SB	6	R	Y	Y		DW	DW	
SW 3 AV	Clear to							
ACTUATED								
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
Flashing Operation		FY	FR	FR				Page 1 of 1

	MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT			
Drawn Mario L. Hernandez	Date 3/20/2012	SW 3 Av & SW 8 St		
Checked H. Hernandez	Date 3/21/12	Placed in Service Date 03/19/2012	Phasing No. 4	Asset Number 3326

QuadPPConcPeds

TOD Schedule Report
for 3327: SW 4 Av&SW 8 St

Print Date: 1/17/2014

Print Time: 8:08 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3327	SW 4 Av&SW 8 St	DOW-6		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	EBT	-	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	2 - 2 - 2	50 - 24 - 24	0 - 71 - 71	4	2.7
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 SBT	7 - 7 - 7	13 - 13 - 13	7 - 7 - 7	2.5 - 2.5 - 2.5	50 - 24 - 24	70 - 71 - 71	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1	2	3	4	5	6	7	8	Ring Offset	Offset
			-	EBT	-	SBT	-	-	-	-		
	1	120	0	44	0	63	0	0	0	0	0	48
	3	80	0	24	0	43	0	0	0	0	0	36
	4	70	0	40	0	17	0	0	0	0	0	41
	6	110	0	44	0	53	0	0	0	0	0	109
	7	130	0	54	0	63	0	0	0	0	0	122
	8	120	0	54	0	53	0	0	0	0	0	119
	9	90	0	39	0	38	0	0	0	0	0	62
	18	80	0	24	0	43	0	0	0	0	0	0
	19	90	0	34	0	43	0	0	0	0	0	0
	20	110	0	54	0	43	0	0	0	0	0	0
	21	100	0	44	0	43	0	0	0	0	0	0
	24	140	0	69	0	58	0	0	0	0	0	104
	25	140	0	69	0	58	0	0	0	0	0	104
	26	120	0	49	0	58	0	0	0	0	0	104
	27	120	0	49	0	58	0	0	0	0	0	104
	28	130	0	59	0	58	0	0	0	0	0	104
	29	130	0	59	0	58	0	0	0	0	0	104

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

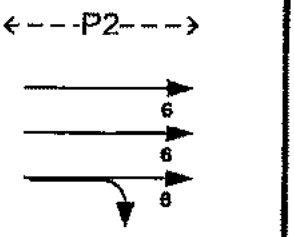
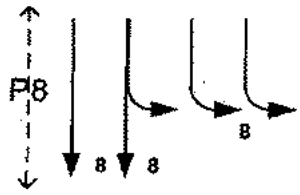
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	EB	WB	SB	NB	Ped Heads	Movements/Display/Actuation
	Head No.	6		8		P2 P8	
(2) EB SW 8 ST RECALL	Dwell	G		R		W/F DW	
	4 Clear to	Y		R		DW DW	
(4) SB SW 4 Av RECALL	Dwell	R		G		DW W/F	
	2 Clear to	R		Y		DW DW	
	Dwell Clear to						
	Dwell Clear to						
	Dwell Clear						
	Dwell Clear to						
Flashing Operation		FY		FR			Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT				
Drawn: Mario L. Hernandez	Date: 5/28/2011	SW 4 Av & SW 8 St		
Checked: H. Hernandez	Date: 6/29/11	Placed in Service: Date 07/11/2011 By AGC	Phasing No.: 5	Asset Number: 3327

QuadPPConcPeds

TOD Schedule Report
for 3381: SW 4 Av&SW 7 St

Print Date: 1/17/2014

Print Time: 8:09 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3381	SW 4 Av&SW 7 St	DOW-6		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	SWT	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
	Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	45 - 19 - 19	0 - 57 - 57	4	2.5
3 SWT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	3 - 3 - 3	25 - 12 - 12	85 - 85 - 85	4.3	2.7
4 SBT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	2.5 - 2.5 - 2.5	15 - 12 - 12	25 - 16 - 16	4	3.2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-234----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1	2	3	4	5	6	7	8	Ring Offset	Offset
			-	WBT	SWT	SBT	-	-	-	-		
	1	120	0	32	55	12	0	0	0	0	0	56
	3	80	0	27	20	12	0	0	0	0	0	76
	4	70	0	18	20	11	0	0	0	0	0	47
	6	110	0	33	43	13	0	0	0	0	0	109
	7	130	0	42	55	12	0	0	0	0	0	126
	8	120	0	42	45	12	0	0	0	0	0	119
	9	90	0	28	29	12	0	0	0	0	0	64
	18	80	0	13	35	11	0	0	0	0	0	0
	19	90	0	22	35	12	0	0	0	0	0	0
	20	110	0	42	35	12	0	0	0	0	0	0
	21	100	0	32	35	12	0	0	0	0	0	0
	24	140	0	65	40	14	0	0	0	0	0	114
	25	140	0	64	40	15	0	0	0	0	0	114
	26	120	0	46	40	13	0	0	0	0	0	114
	27	120	0	46	40	13	0	0	0	0	0	114
	28	130	0	56	40	13	0	0	0	0	0	114
	29	130	0	56	40	13	0	0	0	0	0	114

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

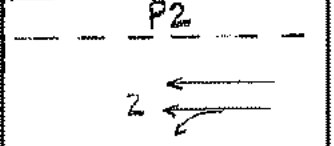
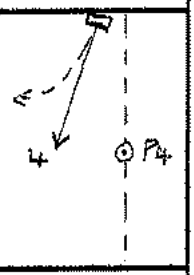
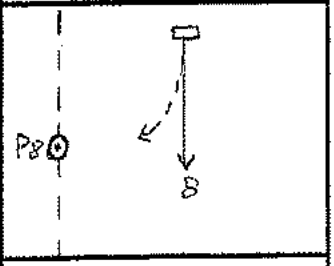
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	WB	SWB	SB	Ped Heads P2	Ped Heads P4	Ped Heads P8	Movements/Display/Actuation
2 WBND SW 7 ST (RECALL)	Head No.	2	4	8				
	Dwell	G	R	R	W/F	DW	DW	
	Clear to 3	Y	R	R	DW	DW	DW	
	Clear to 4	Y	R	R	DW	DW	DW	
3 SWBND I-95 OFF RAMP (ACTUATED)	Dwell	R	G	R	DW	W/F	DW	
	Clear to 4	R	Y	R	DW	DW	DW	
	Clear to 2	R	Y	R	DW	DW	DW	
4 SBND SW 4 AV (ACTUATED)	Dwell	R	R	G	DW	DW	W/F	
	Clear to 2	R	R	Y	DW	DW	DW	
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
Flashing Operation		FY	FR	FR				Page 1 of 1

Miami-Dade County Public Works Department

Drawn	Date	SW 4 AVE & SW 7ST & I-95 OFF RAMP		
H. FRANCILLON	8/22/05			
Checked	Date	Placed in Service	Phasing No.	Asset Number
	8/22/05	Date / By TCD	4	3381

Blank12

TOD Schedule Report
for 3449: S Miami Av&S 7 St

Print Date: 1/23/2014

Print Time: 8:14 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3449	S Miami Av&S 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	NBT	-	WBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	6 - 6 - 6	7 - 7 - 7	1 - 1 - 1	60 - 41 - 41	0 - 42 - 42	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 WBT	4 - 4 - 4	6 - 6 - 6	4 - 4 - 4	1 - 1 - 1	30 - 41 - 41	255 - 255 - 25	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 NBT	3 -	4 WBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	49	0	59	0	0	0	0	0	104
	3	80	0	24	0	44	0	0	0	0	0	76
	4	70	0	34	0	24	0	0	0	0	0	66
	6	110	0	44	0	54	0	0	0	0	0	16
	7	130	0	49	0	69	0	0	0	0	0	78
	8	120	0	49	0	59	0	0	0	0	0	28
	9	90	0	49	0	29	0	0	0	0	0	68
	18	80	0	50	0	18	0	0	0	0	0	0
	19	90	0	29	0	49	0	0	0	0	0	38
	20	110	0	34	0	64	0	0	0	0	0	0
	21	100	0	34	0	54	0	0	0	0	0	0

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	Free	Su S
1930	8	M T W Th F
2130	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	VEH MAX RECALL	----4---	M T W ThF
0545	VEH MAX RECALL	--------	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	VEH MAX RECALL	----4---	M T W ThF
0545	VEH MAX RECALL	--------	M T W ThF

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

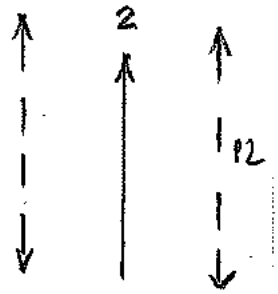
No Calendar Defined/Enabled

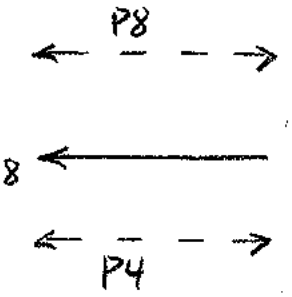
SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER															
	INT		2							8				P2	P4	P6	P8
	R/W		G							R				W	DW	W	DW
	PED. CL.		G							R				FO_W	DW	FO_W	DW
	TO 4		Y							R				DW	DW	DW	DW
	CLEAR																
	R/W		R							G				DW	W	DW	W
	PED. CL.		R							G				DW	FO_W	DW	FO_W
	TO 2		R							Y				DW	DW	DW	DW
	CLEAR																
	R/W																
	TO																
	CLEAR																
	R/W																
	TO																
	CLEAR																
FLASH. OPER. →			R							Y							

Φ2 (2)
NB
MIAMI AV
RECALL

Φ4 (8)
WB
S. 7 ST
RECALL





Drawn: H. HERNANDEZ	Date: 12/13/95	METROPOLITAN DADE COUNTY DEPARTMENT OF PUBLIC WORKS
Check: F. PRATS	Date: 12/13/95	ASSET NO: 3449
Division Engineer	Date	S MIAMI AV & S 7 ST
		Placed in Service: Date: EARLY 192 By:
		Phasing Number: 4

TOD Schedule Report
for 3450: SW 3 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:15 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3450	SW 3 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	1 - 1 - 1	50 - 25 - 25	0 - 41 - 41	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	6 - 6 - 6	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 41 - 41	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 NBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	76	0	32	0	0	0	0	0	59
	3	80	0	56	0	12	0	0	0	0	0	14
	4	70	0	46	0	12	0	0	0	0	0	57
	6	110	0	71	0	27	0	0	0	0	0	102
	7	130	0	86	0	32	0	0	0	0	0	31
	8	120	0	76	0	32	0	0	0	0	0	118
	9	90	0	54	0	24	0	0	0	0	0	42
	18	80	0	54	0	14	0	0	0	0	0	27
	19	90	0	64	0	14	0	0	0	0	0	43
	20	110	0	84	0	14	0	0	0	0	0	23
	21	100	0	74	0	14	0	0	0	0	0	31

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

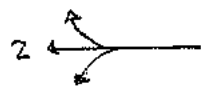
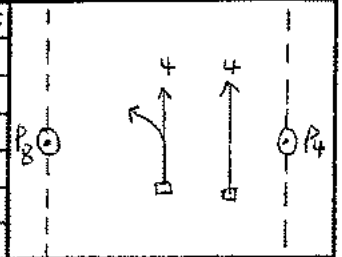
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	WB	NB	Ped Heads P2	Ped Heads P6	Ped Heads P4	Ped Heads P8	Movements/Display/Actuation
2 WB SW 7 ST RECALL	Head No.	2	4	W/F	W/F	DW	DW	P2
	Dwell	G	R	DW	DW	DW	DW	
	Clear to 4	Y	R					P6
4 NB SW 3 AV ACTUATED	Dwell	R	G	DW	DW	W/F	W/F	
	Clear to 2	R	Y	DW	DW	DW	DW	
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
Flashing Operation		FY	FR					Page 1 of 1

Miami-Dade County Public Works Department

Drawn	Date	SW 3 AV & SW 7 ST		
H. FRANCILLON	9/16/05	Placed in Service	Phasing No.	Asset Number
Checked H. HERNANDEZ	Date 9/19/05	Date By SHOP	3	3450

Blank12

TOD Schedule Report
for 4388: SW 5 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:19 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
4388	SW 5 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	-	NBT	-	EBT	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	6 - 6 - 6	10 - 10 - 10	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 15 - 15	50 - 50 - 50	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	10 - 10 - 10	5 - 5 - 5	10 - 10 - 10	2.5 - 2.5 - 2.5	35 - 35 - 35	0 - 50 - 50	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	---4-6--
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1	2	3	4	5	6	7	8	Ring Offset	Offset
			-	-	-	NBT	-	EBT	-	-		
	1	120	0	0	0	40	0	68	0	0	0	80
	3	80	0	0	0	20	0	48	0	0	0	79
	4	70	0	0	0	20	0	38	0	0	0	25
	6	110	0	0	0	35	0	63	0	0	0	84
	7	130	0	0	0	40	0	78	0	0	0	79
	8	120	0	0	0	40	0	68	0	0	0	9
	9	90	0	0	0	27	0	51	0	0	0	51
	18	80	0	0	0	22	0	46	0	0	0	0
	19	90	0	0	0	22	0	56	0	0	0	10
	20	110	0	0	0	22	0	76	0	0	0	0
	21	100	0	0	0	22	0	66	0	0	0	0
	24	140	0	0	0	20	0	108	0	0	0	79
	25	140	0	0	0	20	0	108	0	0	0	79
	26	120	0	0	0	20	0	88	0	0	0	79
	27	120	0	0	0	20	0	88	0	0	0	79
	28	130	0	0	0	20	0	98	0	0	0	79
	29	130	0	0	0	20	0	98	0	0	0	79

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

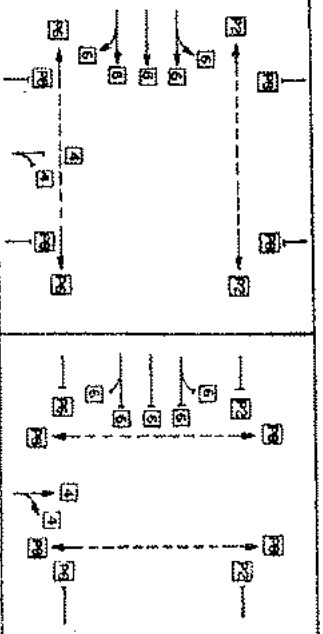
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

TRAFFIC SIGNAL INTERVAL DIAGRAMS

PHASE	INT	SIGNAL HEAD NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	PEDESTRIAN HEAD NUMBER P2	P4	P6	P8
Ø (6) S.W. 6 ST. (PRE-TIMED)	R/W				R		G							W DW	DW DW	W DW	DW DW
	PED. CL.				R		G							DW	DW	DW	DW
	TO Ø2																
	CLEAR																
Ø (4) S.W. 5 AVE. (PRE-TIMED)	R/W				G		R							DW DW	W DW	DW DW	W DW
	PED. CL.				G		R							DW	DW	DW	DW
	TO Ø1																
	CLEAR																
FL. OP.	R/W				FR		FY										
	TO																
	CLEAR																



Asset # 34388

Drawn	Date
SPERRY	1/79
Check	Date
Division Engineer	Date

METROPOLITAN DADE COUNTY
DEPARTMENT OF TRAFFIC AND TRANSPORTATION

S.W. 5 AVE. & S.W. 8 ST.

Placed in Service	Timing Number	Phasing Number
Date: 1/25/79 By:	—	1

Appendix D: Volume Calibration Spreadsheets

Existing AM and PM GEH Calculations

		AM Peak															
		Hour 1				Hour 2				Hour 3				Hour 4			
Intersection	Movement	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?
SW 8th St at SW 8th Ave	EBL	181	186	0.37	Yes	233	232	0.07	Yes	173	162	0.85	Yes	142	139	0.25	Yes
	EBT	939	952	0.42	Yes	1172	1190	0.52	Yes	850	833	0.59	Yes	727	714	0.48	Yes
	EBR	37	38	0.16	Yes	45	47	0.29	Yes	32	33	0.18	Yes	24	28	0.78	Yes
	NBT	116	123	0.64	Yes	146	154	0.65	Yes	110	108	0.19	Yes	92	92	0	Yes
	NBR	31	36	0.86	Yes	43	45	0.3	Yes	32	32	0	Yes	27	27	0	Yes
	SBL	102	109	0.68	Yes	131	136	0.43	Yes	99	95	0.41	Yes	82	82	0	Yes
	SBT	98	108	0.99	Yes	128	135	0.61	Yes	100	95	0.51	Yes	87	81	0.65	Yes
SW 8th St at SW 5th Ave	EBL	54	63	1.18	Yes	71	79	0.92	Yes	57	55	0.27	Yes	48	47	0.15	Yes
	EBT	1006	1028	0.69	Yes	1246	1285	1.1	Yes	952	900	1.71	Yes	786	771	0.54	Yes
	EBR	5	6	0.43	Yes	8	7	0.37	Yes	5	5	0	Yes	6	4	0.89	Yes
	NBT	52	58	0.81	Yes	65	73	0.96	Yes	59	51	1.08	Yes	47	44	0.44	Yes
	NBR	332	359	1.45	Yes	351	449	4.9	Yes	374	314	3.23	Yes	291	269	1.31	Yes
SW 8th St at SW 4th Ave	EBT	1305	1360	1.51	Yes	1553	1700	3.64	Yes	1332	1190	4	Yes	1059	1020	1.21	Yes
	EBR	24	27	0.59	Yes	25	34	1.66	Yes	25	24	0.2	Yes	21	20	0.22	Yes
	SBL	1207	1223	0.46	Yes	1444	1529	2.2	Yes	1179	1070	3.25	Yes	936	917	0.62	Yes
	SBT	374	393	0.97	Yes	420	491	3.33	Yes	418	344	3.79	Yes	342	295	2.63	Yes
SW 8th St at SW 3th Ave	EBL	27	26	0.19	Yes	31	33	0.35	Yes	24	23	0.21	Yes	23	20	0.65	Yes
	EBT	1517	1539	0.56	Yes	1815	1924	2.52	Yes	1504	1347	4.16	Yes	1195	1154	1.2	Yes
	EBR	118	125	0.64	Yes	139	156	1.4	Yes	122	109	1.21	Yes	96	94	0.21	Yes
	NBT	192	194	0.14	Yes	225	242	1.11	Yes	197	169	2.07	Yes	144	145	0.08	Yes
	NBR	237	247	0.64	Yes	277	309	1.87	Yes	252	216	2.35	Yes	174	185	0.82	Yes
	SBL	6	6	0	Yes	7	8	0.37	Yes	6	6	0	Yes	7	5	0.82	Yes
	SBT	243	243	0	Yes	272	304	1.89	Yes	266	213	3.42	Yes	196	182	1.02	Yes
SW 8th St at SW 2nd Ave	EBL	294	303	0.52	Yes	349	379	1.57	Yes	309	265	2.6	Yes	231	227	0.26	Yes
	EBT	1263	1295	0.89	Yes	1511	1619	2.73	Yes	1288	1133	4.46	Yes	996	971	0.8	Yes
	EBR	193	194	0.07	Yes	236	243	0.45	Yes	188	170	1.35	Yes	150	146	0.33	Yes
	NBT	729	734	0.18	Yes	810	917	3.64	Yes	766	642	4.67	Yes	555	550	0.21	Yes
	NBR	74	66	0.96	Yes	72	83	1.25	Yes	70	58	1.5	Yes	55	50	0.69	Yes
	SBL	190	191	0.07	Yes	206	239	2.21	Yes	205	167	2.79	Yes	164	143	1.69	Yes
	SBT	316	320	0.22	Yes	351	400	2.53	Yes	340	280	3.41	Yes	251	240	0.7	Yes
SW 8th St at SW 1st Ave	EBT	1156	1179	0.67	Yes	1354	1474	3.19	Yes	1185	1032	4.6	Yes	920	884	1.2	Yes
	EBR	371	374	0.16	Yes	435	467	1.51	Yes	379	327	2.77	Yes	295	280	0.88	Yes
	SBL	190	183	0.51	Yes	229	229	0	Yes	171	160	0.86	Yes	150	137	1.09	Yes
	SBT	403	410	0.35	Yes	500	513	0.58	Yes	383	359	1.25	Yes	319	308	0.62	Yes
SW 8th St at S Miami Ave	EBL	168	168	0	Yes	200	210	0.7	Yes	171	147	1.9	Yes	132	126	0.53	Yes
	EBT	1172	1194	0.64	Yes	1381	1493	2.95	Yes	1191	1045	4.37	Yes	939	896	1.42	Yes
	NBT	495	489	0.27	Yes	603	611	0.32	Yes	432	428	0.19	Yes	355	367	0.63	Yes
	NBR	59	57	0.26	Yes	78	71	0.81	Yes	50	50	0	Yes	38	43	0.79	Yes
SW 7th St at S Miami Ave	WBT	452	449	0.14	Yes	554	561	0.3	Yes	414	393	1.05	Yes	347	337	0.54	Yes
	WBR	56	50	0.82	Yes	64	63	0.13	Yes	49	44	0.73	Yes	40	38	0.32	Yes
	NBL	230	229	0.07	Yes	272	286	0.84	Yes	212	200	0.84	Yes	167	172	0.38	Yes
	NBT	432	428	0.19	Yes	525	535	0.43	Yes	401	375	1.32	Yes	321	321	0	Yes
SW 7th St at SW 1st Ave	WBL	94	94	0	Yes	113	117	0.37	Yes	95	82	1.38	Yes	73	70	0.35	Yes
	WBT	587	584	0.12	Yes	687	730	1.62	Yes	556	511	1.95	Yes	447	438	0.43	Yes
	SBT	500	500	0	Yes	618	625	0.28	Yes	450	438	0.57	Yes	395	375	1.02	Yes
	SBR	237	249	0.77	Yes	305	311	0.34	Yes	233	218	1	Yes	188	187	0.07	Yes
SW 7th St at SW 2nd Ave	WBL	48	48	0	Yes	56	60	0.53	Yes	51	42	1.32	Yes	43	36	1.11	Yes
	WBT	618	631	0.52	Yes	700	789	3.26	Yes	632	552	3.29	Yes	494	473	0.96	Yes
	WBR	154	154	0	Yes	180	192	0.88	Yes	148	134	1.18	Yes	119	115	0.37	Yes
	NBL	204	208	0.28	Yes	227	260	2.11	Yes	233	182	3.54	Yes	161	156	0.4	Yes
	NBT	816	829	0.45	Yes	931	1036	3.35	Yes	853	725	4.56	Yes	633	622	0.44	Yes
	SBT	463	463	0	Yes	488	579	3.94	Yes	456	405	2.46	Yes	364	347	0.9	Yes
	SBR	128	130	0.18	Yes	142	163	1.7	Yes	126	114	1.1	Yes	104	98	0.6	Yes
SW 7th St at SW 3rd Ave	WBL	249	250	0.06	Yes	281	312	1.8	Yes	272	218	3.45	Yes	201	187	1.01	Yes
	WBT	644	664	0.78	Yes	706	830	4.47	Yes	679	581	3.9	Yes	532	498	1.5	Yes
	WBR	55	56	0.13	Yes	64	70	0.73	Yes	53	49	0.56	Yes	46	42	0.6	Yes
	NBL	143	141	0.17	Yes	170	176	0.46	Yes	151	123	2.39	Yes	111	106	0.48	Yes
	NBT	76	79	0.34	Yes	87	99	1.24	Yes	72	69	0.36	Yes	56	59	0.4	Yes
SW 7th St at SW 4th Ave/I-95 SB Off Ramp	WBL	428	463	1.66	Yes	485	579	4.08	Yes	480	405	3.57	Yes	384	347	1.94	Yes
	WBT	345	342	0.16	Yes	384	427	2.14	Yes	354	299	3.04	Yes	280	256	1.47	Yes
	SBT	181	179	0.15	Yes	209	224	1.02	Yes	192	157	2.65	Yes	138	134	0.34	Yes
	SBR	9	10	0.32	Yes	12	12	0	Yes	10	8	0.67	Yes	9	7	0.71	Yes
	SWBL	973	974	0.03	Yes	1176	1217	1.19	Yes	912	852	2.02	Yes	756	730	0.95	Yes
	SWBR	327	342	0.82	Yes	400	428	1.38	Yes	303	300	0.17	Yes	255	257	0.13	Yes
SW 7th St at SW 5th Ave	WBT	514	515	0.04	Yes	592	644	2.09	Yes	501	451	2.29	Yes	408	386	1.1	Yes
	WBR	165	178	0.99	Yes	204	223	1.3	Yes	169	156	1.02	Yes	136	134	0.17	Yes
	NBL	74	91	1.87	Yes	94	114	1.96	Yes	82	80	0.22	Yes	67	68	0.12	Yes
	NBT	32	30	0.36	Yes	42	38	0.63	Yes	35	27	1.44	Yes	28	23	0.99	Yes
	SBR	57	64	0.9	Yes	81	80	0.11	Yes	61	56	0.65	Yes	49	48	0.14	Yes
SW 7th St at SW 8th Ave	WBL	32	38	1.01	Yes	40	48	1.21	Yes	36	34	0.34	Yes	30	29	0.18	Yes
	WBT	572	591	0.79	Yes	686	739	1.99	Yes	572	517	2.36	Yes	466	443	1.08	Yes
	WBR	36	41	0.81	Yes	44	51	1.02	Yes	38	36	0.33	Yes	33	31	0.35	Yes
	NBL	53	53	0	Yes	62	66	0.5	Yes	46	46	0	Yes	39	40	0.16	Yes
	NBT	244	256	0.76	Yes	317	320	0.17	Yes	237	224	0.86	Yes	195	192	0.22	Yes
	SBT	168	178	0.76	Yes	219	223	0.27	Yes	161	156	0.4	Yes	139	134	0.43	Yes
	SBR	66	69	0.37	Yes	80	86	0.66	Yes	58	60	0.26	Yes	54	52	0.27	Yes

Existing AM and PM GEH Calculations

		PM Peak															
		Hour 1				Hour 2				Hour 3				Hour 4			
Intersection	Movement	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?	VISSIM Simulated Volume	Demand Volume	GEH	GEH < 5?
SW 8th St at SW 8th Ave	EBL	119	123	0.36	Yes	173	175	0.15	Yes	134	131	0.26	Yes	119	114	0.46	Yes
	EBT	726	739	0.48	Yes	1055	1056	0.03	Yes	809	792	0.6	Yes	693	686	0.27	Yes
	EBR	12	16	1.07	Yes	21	23	0.43	Yes	14	17	0.76	Yes	11	15	1.11	Yes
	NBT	78	81	0.34	Yes	110	116	0.56	Yes	89	87	0.21	Yes	77	75	0.23	Yes
	NBR	19	23	0.87	Yes	29	33	0.72	Yes	26	25	0.2	Yes	21	21	0	Yes
	SBL	64	76	1.43	Yes	96	108	1.19	Yes	80	81	0.11	Yes	70	70	0	Yes
	SBT	79	92	1.41	Yes	122	131	0.8	Yes	101	98	0.3	Yes	89	85	0.43	Yes
SW 8th St at SW 5th Ave	EBL	103	127	2.24	Yes	151	181	2.33	Yes	121	136	1.32	Yes	106	118	1.13	Yes
	EBT	675	686	0.42	Yes	980	980	0	Yes	760	735	0.91	Yes	653	637	0.63	Yes
	EBR	29	25	0.77	Yes	46	36	1.56	Yes	35	27	1.44	Yes	30	23	1.36	Yes
	NBT	88	96	0.83	Yes	131	137	0.52	Yes	105	103	0.2	Yes	93	89	0.42	Yes
	NBR	169	195	1.93	Yes	253	278	1.53	Yes	205	209	0.28	Yes	182	181	0.07	Yes
SW 8th St at SW 4th Ave	EBT	779	841	2.18	Yes	1183	1201	0.52	Yes	931	901	0.99	Yes	795	781	0.5	Yes
	EBR	39	40	0.16	Yes	64	57	0.9	Yes	48	43	0.74	Yes	37	37	0	Yes
	SBL	857	868	0.37	Yes	1149	1240	2.63	Yes	1055	930	3.97	Yes	874	806	2.35	Yes
	SBT	345	361	0.85	Yes	466	515	2.21	Yes	413	386	1.35	Yes	346	335	0.6	Yes
SW 8th St at SW 3th Ave	EBL	60	57	0.39	Yes	82	81	0.11	Yes	69	61	0.99	Yes	59	53	0.8	Yes
	EBT	962	997	1.12	Yes	1375	1424	1.31	Yes	1160	1068	2.76	Yes	946	926	0.65	Yes
	EBR	40	48	1.21	Yes	69	69	0	Yes	54	52	0.27	Yes	43	45	0.3	Yes
	NBT	287	307	1.16	Yes	354	439	4.27	Yes	364	329	1.88	Yes	337	285	2.95	Yes
	NBR	223	218	0.34	Yes	272	311	2.28	Yes	271	233	2.39	Yes	230	202	1.91	Yes
	SBL	13	15	0.53	Yes	22	21	0.22	Yes	15	16	0.25	Yes	13	14	0.27	Yes
	SBT	257	267	0.62	Yes	357	382	1.3	Yes	336	287	2.78	Yes	272	248	1.49	Yes
SW 8th St at SW 2nd Ave	EBL	215	213	0.14	Yes	276	304	1.64	Yes	258	228	1.92	Yes	207	198	0.63	Yes
	EBT	744	763	0.69	Yes	1015	1090	2.31	Yes	906	818	3	Yes	755	709	1.7	Yes
	EBR	244	253	0.57	Yes	344	362	0.96	Yes	305	272	1.94	Yes	243	235	0.52	Yes
	NBT	611	622	0.44	Yes	727	889	5.7	No	717	667	1.9	Yes	686	578	4.3	Yes
	NBR	64	59	0.64	Yes	72	84	1.36	Yes	66	63	0.37	Yes	74	55	2.37	Yes
	SBL	118	111	0.65	Yes	158	158	0	Yes	123	119	0.36	Yes	108	103	0.49	Yes
	SBT	265	265	0	Yes	379	379	0	Yes	300	284	0.94	Yes	241	246	0.32	Yes
SW 8th St at SW 1st Ave	EBT	684	704	0.76	Yes	958	1005	1.5	Yes	826	754	2.56	Yes	695	653	1.62	Yes
	EBR	219	229	0.67	Yes	307	327	1.12	Yes	276	245	1.92	Yes	223	213	0.68	Yes
	SBL	103	99	0.4	Yes	142	142	0	Yes	116	107	0.85	Yes	104	92	1.21	Yes
	SBT	510	513	0.13	Yes	705	733	1.04	Yes	571	550	0.89	Yes	491	476	0.68	Yes
SW 8th St at S Miami Ave	EBL	190	186	0.29	Yes	250	265	0.93	Yes	219	199	1.38	Yes	194	172	1.63	Yes
	EBT	610	617	0.28	Yes	848	882	1.16	Yes	717	662	2.09	Yes	613	573	1.64	Yes
	NBT	487	491	0.18	Yes	668	702	1.3	Yes	565	527	1.63	Yes	445	456	0.52	Yes
	NBR	38	36	0.33	Yes	58	52	0.81	Yes	40	39	0.16	Yes	33	34	0.17	Yes
SW 7th St at S Miami Ave	WBT	692	713	0.79	Yes	1018	1019	0.03	Yes	770	764	0.22	Yes	663	662	0.04	Yes
	WBR	84	80	0.44	Yes	117	114	0.28	Yes	89	86	0.32	Yes	77	74	0.35	Yes
	NBL	310	307	0.17	Yes	406	438	1.56	Yes	382	329	2.81	Yes	284	285	0.06	Yes
	NBT	366	370	0.21	Yes	492	529	1.64	Yes	422	397	1.24	Yes	357	344	0.69	Yes
SW 7th St at SW 1st Ave	WBL	149	150	0.08	Yes	211	214	0.21	Yes	172	161	0.85	Yes	140	139	0.08	Yes
	WBT	849	870	0.72	Yes	1198	1243	1.29	Yes	1002	932	2.25	Yes	807	808	0.04	Yes
	SBT	464	463	0.05	Yes	650	661	0.43	Yes	498	496	0.09	Yes	451	430	1	Yes
	SBR	199	205	0.42	Yes	294	293	0.06	Yes	232	220	0.8	Yes	195	190	0.36	Yes
SW 7th St at SW 2nd Ave	WBL	57	55	0.27	Yes	83	79	0.44	Yes	62	59	0.39	Yes	54	51	0.41	Yes
	WBT	841	867	0.89	Yes	1185	1238	1.52	Yes	993	929	2.06	Yes	804	805	0.04	Yes
	WBR	154	153	0.08	Yes	214	219	0.34	Yes	188	164	1.81	Yes	147	142	0.42	Yes
	NBL	236	235	0.07	Yes	276	335	3.38	Yes	285	251	2.08	Yes	275	218	3.63	Yes
	NBT	596	601	0.2	Yes	704	858	5.51	No	700	644	2.16	Yes	640	558	3.35	Yes
	SBT	326	321	0.28	Yes	446	458	0.56	Yes	366	344	1.17	Yes	295	298	0.17	Yes
	SBR	232	236	0.26	Yes	332	337	0.27	Yes	266	253	0.81	Yes	225	219	0.4	Yes
SW 7th St at SW 3rd Ave	WBL	275	282	0.42	Yes	378	403	1.27	Yes	347	302	2.5	Yes	287	262	1.51	Yes
	WBT	823	839	0.56	Yes	1111	1198	2.56	Yes	966	899	2.19	Yes	821	779	1.48	Yes
	WBR	214	216	0.14	Yes	284	309	1.45	Yes	245	232	0.84	Yes	207	201	0.42	Yes
	NBL	203	207	0.28	Yes	246	296	3.04	Yes	258	222	2.32	Yes	243	192	3.46	Yes
	NBT	147	157	0.81	Yes	189	224	2.44	Yes	175	168	0.53	Yes	153	146	0.57	Yes
SW 7th St at SW 4th Ave/I-95 SB Off Ramp	WBL	415	435	0.97	Yes	571	621	2.05	Yes	533	466	3	Yes	457	404	2.55	Yes
	WBT	579	611	1.31	Yes	793	873	2.77	Yes	715	655	2.29	Yes	600	567	1.37	Yes
	SBT	172	172	0	Yes	233	246	0.84	Yes	219	185	2.39	Yes	163	160	0.24	Yes
	SBR	23	23	0	Yes	35	33	0.34	Yes	30	25	0.95	Yes	23	21	0.43	Yes
	SWBL	601	622	0.85	Yes	817	888	2.43	Yes	727	666	2.31	Yes	586	577	0.37	Yes
	SWBR	667	666	0.04	Yes	891	951	1.98	Yes	786	713	2.67	Yes	645	618	1.07	Yes
SW 7th St at SW 5th Ave	WBT	1021	1039	0.56	Yes	1378	1484	2.8	Yes	1230	1113	3.42	Yes	1021	965	1.78	Yes
	WBR	249	261	0.75	Yes	335	373	2.02	Yes	307	280	1.58	Yes	247	242	0.32	Yes
	NBL	147	182	2.73	Yes	213	260	3.06	Yes	175	195	1.47	Yes	157	169	0.94	Yes
	NBT	44	41	0.46	Yes	68	58	1.26	Yes	54	44	1.43	Yes	44	38	0.94	Yes
	SBR	50	56	0.82	Yes	81	80	0.11	Yes	65	60	0.63	Yes	52	52	0	Yes
SW 7th St at SW 8th Ave	WBL	29	40	1.87	Yes	43	57	1.98	Yes	41	43	0.31	Yes	33	37	0.68	Yes
	WBT	1119	1174	1.62	Yes	1543	1677	3.34	Yes	1366	1258	2.98	Yes	1144	1090	1.62	Yes
	WBR	63	63	0	Yes	84	90	0.64	Yes	71	68	0.36	Yes	61	59	0.26	Yes
	NBL	66	67	0.12	Yes	92	96	0.41	Yes	73	72	0.12	Yes	63	62	0.13	Yes
	NBT	131	137	0.52	Yes	191	195	0.29	Yes	150	146	0.33	Yes	133	127	0.53	Yes
	SBT	115	127	1.09	Yes	176	182	0.45	Yes	138	137	0.09	Yes	126	118	0.72	Yes
	SBR	40	41	0.16	Yes	52	59	0.94	Yes	44	44	0	Yes	39	38	0.16	Yes

AM Peak

		Hour 1									Hour 2								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	1157	1176	19	2%	0.6	Yes	-	Yes	-	1450	1469	19	1%	0.5	Yes	-	Yes	-
	8th Avenue to 5th Avenue	1065	1097	32	3%	1.0	Yes	-	Yes	-	1325	1371	46	3%	1.3	Yes	-	Yes	-
	5th Avenue to 4th Avenue	1329	1387	58	4%	1.6	Yes	-	Yes	-	1578	1734	156	9%	3.8	Yes	-	Yes	-
	4th Avenue to 3rd Avenue	1662	1690	28	2%	0.7	Yes	-	Yes	-	1985	2113	128	6%	2.8	Yes	-	Yes	-
	3rd Avenue to 2nd Avenue	1557	1598	41	3%	1.0	Yes	-	Yes	-	1860	1998	138	7%	3.1	Yes	-	Yes	-
	2nd Avenue to 1st Avenue	1527	1553	26	2%	0.7	Yes	-	Yes	-	1789	1941	152	8%	3.5	Yes	-	Yes	-
	1st Avenue to S Miami Avenue	1340	1362	22	2%	0.6	Yes	-	Yes	-	1581	1703	122	7%	3.0	Yes	-	Yes	-
Westbound 7th Street	East of S Miami Avenue to S Miami Avenue	508	499	-9	2%	0.4	Yes	Yes	-	-	618	624	6	1%	0.2	Yes	Yes	-	-
	S Miami Avenue to 1st Avenue	681	678	-3	0%	0.1	Yes	Yes	-	-	800	847	47	6%	1.6	Yes	-	Yes	-
	1st Avenue to 2nd Avenue	820	833	13	2%	0.5	Yes	-	Yes	-	936	1041	105	10%	3.3	Yes	-	Yes	-
	2nd Avenue to 3rd Avenue	893	914	21	2%	0.7	Yes	-	Yes	-	987	1142	155	14%	4.8	Yes	-	Yes	-
	3rd Avenue to 4th Avenue	773	805	32	4%	1.1	Yes	-	Yes	-	869	1006	137	14%	4.5	Yes	-	Yes	-
	4th Avenue to 5th Avenue	679	693	14	2%	0.5	Yes	Yes	-	-	796	867	71	8%	2.5	Yes	-	Yes	-
	5th Avenue to 8th Avenue	640	670	30	4%	1.2	Yes	Yes	-	-	770	838	68	8%	2.4	Yes	-	Yes	-
Total		14631	14955	324	-2.2%		14	4	10	0	17344	18694	1350	-7.2%		14	1	13	0
							0	0	0	0						0	0	0	0
							100%	100%	100%	0%						100%	100%	100%	0%

		Hour 3									Hour 4								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	1055	1028	-27	3%	0.8	Yes	-	Yes	-	893	881	-12	1%	0.4	Yes	-	Yes	-
	8th Avenue to 5th Avenue	1014	960	-54	6%	1.7	Yes	-	Yes	-	840	822	-18	2%	0.6	Yes	-	Yes	-
	5th Avenue to 4th Avenue	1357	1214	-143	12%	4.0	Yes	-	Yes	-	1080	1040	-40	4%	1.2	Yes	-	Yes	-
	4th Avenue to 3rd Avenue	1650	1479	-171	12%	4.3	Yes	-	Yes	-	1314	1268	-46	4%	1.3	Yes	-	Yes	-
	3rd Avenue to 2nd Avenue	1597	1398	-199	14%	5.1	No	-	Yes	-	1227	1198	-29	2%	0.8	Yes	-	Yes	-
	2nd Avenue to 1st Avenue	1564	1359	-205	15%	5.4	No	-	No	-	1215	1164	-51	4%	1.5	Yes	-	Yes	-
	1st Avenue to S Miami Avenue	1362	1192	-170	14%	4.8	Yes	-	Yes	-	1071	1022	-49	5%	1.5	Yes	-	Yes	-
Westbound 7th Street	East of S Miami Avenue to S Miami Avenue	463	437	-26	6%	1.2	Yes	Yes	-	-	387	375	-12	3%	0.6	Yes	Yes	-	-
	S Miami Avenue to 1st Avenue	651	593	-58	10%	2.3	Yes	Yes	-	-	520	508	-12	2%	0.5	Yes	Yes	-	-
	1st Avenue to 2nd Avenue	831	728	-103	14%	3.7	Yes	-	Yes	-	656	624	-32	5%	1.3	Yes	Yes	-	-
	2nd Avenue to 3rd Avenue	951	799	-152	19%	5.1	No	-	No	-	733	685	-48	7%	1.8	Yes	Yes	-	-
	3rd Avenue to 4th Avenue	834	704	-130	18%	4.7	Yes	-	No	-	664	603	-61	10%	2.4	Yes	Yes	-	-
	4th Avenue to 5th Avenue	670	607	-63	10%	2.5	Yes	Yes	-	-	544	520	-24	5%	1.0	Yes	Yes	-	-
	5th Avenue to 8th Avenue	646	587	-59	10%	2.4	Yes	Yes	-	-	529	503	-26	5%	1.1	Yes	Yes	-	-
Total		14645	13085	-1560	11.9%		11	4	7	0	11673	11213	-460	4.1%		14	7	7	0
							3	0	3	0						0	0	0	0
							79%	100%	70%	0%						100%	100%	100%	0%

		Sum of Hours 1-4								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	4555	4554	-1	0%	0.0	Yes	-	-	Yes
	8th Avenue to 5th Avenue	4244	4250	6	0%	0.1	Yes	-	-	Yes
	5th Avenue to 4th Avenue	5344	5375	31	1%	0.4	Yes	-	-	Yes
	4th Avenue to 3rd Avenue	6611	6550	-61	1%	0.8	Yes	-	-	Yes
	3rd Avenue to 2nd Avenue	6241	6192	-49	1%	0.6	Yes	-	-	Yes
	2nd Avenue to 1st Avenue	6095	6017	-78	1%	1.0	Yes	-	-	Yes
	1st Avenue to S Miami Avenue	5354	5279	-75	1%	1.0	Yes	-	-	Yes
Westbound 7th Street	East of S Miami Avenue to S Miami Avenue	1976	1935	-41	2%	0.9	Yes	-	Yes	-
	S Miami Avenue to 1st Avenue	2652	2626	-26	1%	0.5	Yes	-	Yes	-
	1st Avenue to 2nd Avenue	3243	3226	-17	1%	0.3	Yes	-	-	Yes
	2nd Avenue to 3rd Avenue	3564	3540	-24	1%	0.4	Yes	-	-	Yes
	3rd Avenue to 4th Avenue	3140	3118	-22	1%	0.4	Yes	-	-	Yes
	4th Avenue to 5th Avenue	2689	2687	-2	0%	0.0	Yes	-	Yes	-
	5th Avenue to 8th Avenue	2585	2598	13	1%	0.3	Yes	-	Yes	-
Total		58293	57947	-346	0.6%		14	0	4	10
							0	0	0	0
							100%	0%	100%	100%

PM Peak

		Hour 1									Hour 2								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	857	878	21	2%	0.7	Yes	-	Yes	-	1249	1254	5	0%	0.1	Yes	-	Yes	-
	8th Avenue to 5th Avenue	807	838	31	4%	1.1	Yes	-	Yes	-	1177	1197	20	2%	0.6	Yes	-	Yes	-
	5th Avenue to 4th Avenue	818	881	63	7%	2.2	Yes	-	Yes	-	1247	1258	11	1%	0.3	Yes	-	Yes	-
	4th Avenue to 3rd Avenue	1062	1102	40	4%	1.2	Yes	-	Yes	-	1526	1574	48	3%	1.2	Yes	-	Yes	-
	3rd Avenue to 2nd Avenue	959	976	17	2%	0.5	Yes	-	Yes	-	1291	1394	103	7%	2.8	Yes	-	Yes	-
	2nd Avenue to 1st Avenue	903	933	30	3%	1.0	Yes	-	Yes	-	1265	1332	67	5%	1.9	Yes	-	Yes	-
	1st Avenue to S Miami Avenue	800	803	3	0%	0.1	Yes	-	Yes	-	1098	1147	49	4%	1.5	Yes	-	Yes	-
Westbound 7th Street	East of S Miami Avenue to S Miami Avenue	776	793	17	2%	0.6	Yes	-	Yes	-	1135	1133	-2	0%	0.1	Yes	-	Yes	-
	S Miami Avenue to 1st Avenue	998	1020	22	2%	0.7	Yes	-	Yes	-	1409	1457	48	3%	1.3	Yes	-	Yes	-
	1st Avenue to 2nd Avenue	1052	1075	23	2%	0.7	Yes	-	Yes	-	1482	1536	54	4%	1.4	Yes	-	Yes	-
	2nd Avenue to 3rd Avenue	1098	1121	23	2%	0.7	Yes	-	Yes	-	1489	1601	112	7%	2.8	Yes	-	Yes	-
	3rd Avenue to 4th Avenue	994	1046	52	5%	1.6	Yes	-	Yes	-	1364	1494	130	9%	3.4	Yes	-	Yes	-
	4th Avenue to 5th Avenue	1270	1300	30	2%	0.8	Yes	-	Yes	-	1713	1857	144	8%	3.4	Yes	-	Yes	-
	5th Avenue to 8th Avenue	1211	1277	66	5%	1.9	Yes	-	Yes	-	1670	1824	154	8%	3.7	Yes	-	Yes	-
Total		13605	14043	438	-3.1%		14	0	14	0	19115	20058	943	-4.7%		14	0	14	0
							0	0	0	0						0	0	0	0
							100%	0%	100%	0%						100%	0%	100%	0%

		Hour 3									Hour 4								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	957	940	-17	2%	0.6	Yes	-	Yes	-	823	815	-8	1%	0.3	Yes	-	Yes	-
	8th Avenue to 5th Avenue	916	898	-18	2%	0.6	Yes	-	Yes	-	789	778	-11	1%	0.4	Yes	-	Yes	-
	5th Avenue to 4th Avenue	979	944	-35	4%	1.1	Yes	-	Yes	-	832	818	-14	2%	0.5	Yes	-	Yes	-
	4th Avenue to 3rd Avenue	1283	1181	-102	9%	2.9	Yes	-	Yes	-	1048	1024	-24	2%	0.7	Yes	-	Yes	-
	3rd Avenue to 2nd Avenue	1164	1046	-118	11%	3.5	Yes	-	Yes	-	962	907	-55	6%	1.8	Yes	-	Yes	-
	2nd Avenue to 1st Avenue	1102	999	-103	10%	3.2	Yes	-	Yes	-	918	866	-52	6%	1.7	Yes	-	Yes	-
	1st Avenue to S Miami Avenue	936	861	-75	9%	2.5	Yes	-	Yes	-	807	745	-62	8%	2.2	Yes	-	Yes	-
Westbound 7th Street	East of S Miami Avenue to S Miami	859	850	-9	1%	0.3	Yes	-	Yes	-	740	736	-4	1%	0.1	Yes	-	Yes	-
	S Miami Avenue to 1st Avenue	1174	1093	-81	7%	2.4	Yes	-	Yes	-	947	947	0	0%	0.0	Yes	-	Yes	-
	1st Avenue to 2nd Avenue	1243	1152	-91	8%	2.6	Yes	-	Yes	-	1005	998	-7	1%	0.2	Yes	-	Yes	-
	2nd Avenue to 3rd Avenue	1313	1201	-112	9%	3.2	Yes	-	Yes	-	1108	1041	-67	6%	2.0	Yes	-	Yes	-
	3rd Avenue to 4th Avenue	1248	1121	-127	11%	3.7	Yes	-	Yes	-	1057	971	-86	9%	2.7	Yes	-	Yes	-
	4th Avenue to 5th Avenue	1537	1393	-144	10%	3.8	Yes	-	Yes	-	1268	1207	-61	5%	1.7	Yes	-	Yes	-
	5th Avenue to 8th Avenue	1478	1369	-109	8%	2.9	Yes	-	Yes	-	1238	1186	-52	4%	1.5	Yes	-	Yes	-
Total		16189	15048	-1141	7.6%		14	0	14	0	13542	13039	-503	3.9%		14	0	14	0
							0	0	0	0						0	0	0	0
							100%	0%	100%	0%						100%	0%	100%	0%

		Sum of Hours 1-4								
	Segment	VISSIM Simulated Volume	Demand Volume	Difference	% Difference	GEH	GEH < 5	Demand<700	700<Demand<2700	Demand>2700
Eastbound 8th Street	West of 8th Avenue to 8th Avenue	3886	3887	1	0%	0.0	Yes	-	-	Yes
	8th Avenue to 5th Avenue	3689	3711	22	1%	0.4	Yes	-	-	Yes
	5th Avenue to 4th Avenue	3876	3901	25	1%	0.4	Yes	-	-	Yes
	4th Avenue to 3rd Avenue	4919	4881	-38	1%	0.5	Yes	-	-	Yes
	3rd Avenue to 2nd Avenue	4376	4323	-53	1%	0.8	Yes	-	-	Yes
	2nd Avenue to 1st Avenue	4188	4130	-58	1%	0.9	Yes	-	-	Yes
	1st Avenue to S Miami Avenue	3641	3556	-85	2%	1.4	Yes	-	-	Yes
Westbound 7th Street	East of S Miami Avenue to S Miami	3510	3512	2	0%	0.0	Yes	-	-	Yes
	S Miami Avenue to 1st Avenue	4528	4517	-11	0%	0.2	Yes	-	-	Yes
	1st Avenue to 2nd Avenue	4782	4761	-21	0%	0.3	Yes	-	-	Yes
	2nd Avenue to 3rd Avenue	5008	4964	-44	1%	0.6	Yes	-	-	Yes
	3rd Avenue to 4th Avenue	4663	4632	-31	1%	0.5	Yes	-	-	Yes
	4th Avenue to 5th Avenue	5788	5757	-31	1%	0.4	Yes	-	-	Yes
	5th Avenue to 8th Avenue	5597	5656	59	1%	0.8	Yes	-	-	Yes
Total		62451	62188	-263	0.4%		14	0	0	14
							0	0	0	0
							100%	0%	0%	100%

Appendix E: Node Output

AM Existing: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	232	1,190	47	0	0	0	0	154	45	136	135	0
Volume	233	1,172	45					146	43	131	128	
Demand -Simulated Volume	1	-18	-2					-8	-2	-5	-7	
Percentage (%)	0%	-2%	-4%					-5%	-4%	-4%	-5%	
Delay (sec/veh)	25	22	21					33	21	7	13	
Delay (sec/veh)		22.1						29.9			9.8	
Max queue (ft)	394	394	421					217	250	155	139	
							Intersection Delay (sec/veh)				21.2	

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	79	1,285	7	0	0	0	0	73	449	0	0	0
Volume	71	1,246	8					65	351			
Demand -Simulated Volume	-8	-39	1					-8	-98			
Percentage (%)	-10%	-3%	14%					-11%	-22%			
Delay (sec/veh)	24	32	46					162	158			
Delay (sec/veh)		32.0						158.5				
Max queue (ft)	634	634	622					2,369	2,396			
							Intersection Delay (sec/veh)				62.2	

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,700	34	0	0	0	0	0	0	1,529	491	0
Volume		1,553	25							1,444	420	
Demand -Simulated Volume		-147	-9							-85	-71	
Percentage (%)		-9%	-26%							-6%	-14%	
Delay (sec/veh)		59	54							24	17	
Delay (sec/veh)		59.2								22.4		
Max queue (ft)		559	594							378	378	
							Intersection Delay (sec/veh)				39.2	

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	33	1,924	156	0	0	0	0	242	309	8	304	0
Volume	31	1,815	139					225	277	7	272	
Demand -Simulated Volume	-2	-109	-17					-17	-32	-1	-32	
Percentage (%)	-6%	-6%	-11%					-7%	-10%	-13%	-11%	
Delay (sec/veh)	29	31	36					188	156	57	43	
Delay (sec/veh)		30.8						170.8			43.6	
Max queue (ft)	570	570	175					1,668	1,668	38	371	
							Intersection Delay (sec/veh)				57.5	

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	379	1,619	243	0	0	0	0	917	83	239	400	0
Volume	349	1,511	236					810	72	206	351	
Demand -Simulated Volume	-30	-108	-7					-107	-11	-33	-49	
Percentage (%)	-8%	-7%	-3%					-12%	-13%	-14%	-12%	
Delay (sec/veh)	82	32	29					187	173	110	10	
Delay (sec/veh)		40.3						185.6			47.1	
Max queue (ft)	564	564	582					2,550	2,577	362	362	
							Intersection Delay (sec/veh)				77.6	

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,474	467	0	0	0	0	0	0	229	513	0
Volume		1,354	435							229	500	
Demand -Simulated Volume		-120	-32							0	-13	
Percentage (%)		-8%	-7%							0%	-3%	
Delay (sec/veh)		15	21							60	49	
Delay (sec/veh)		16.8									52.1	
Max queue (ft)		440	465							387	387	
							Intersection Delay (sec/veh)				27.0	

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	210	1,493	0	0	0	0	0	611	71	0	0	0
Volume	200	1,381						603	78			
Demand -Simulated Volume	-10	-112						-8	7			
Percentage (%)	-5%	-8%						-1%	10%			
Delay (sec/veh)	11	12						37	30			
Delay (sec/veh)		11.5						36.3				
Max queue (ft)	295	295						295	297			
							Intersection Delay (sec/veh)				19.0	

AM Existing: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	561	63	286	535	0	0	0	0
Volume					554	64	272	525				
Demand -Simulated Volume					-7	1	-14	-10				
Percentage (%)					-1%	2%	-5%	-2%				
Delay (sec/veh)					19	16	5	18				
Delay (sec/veh)					18.7			13.4				
Max queue (ft)					259	276	234	234				
							Intersection Delay (sec/veh)				15.7	

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	117	730	0	0	0	0	0	625	311
Volume				113	687						618	305
Demand -Simulated Volume				-4	-43						-7	-6
Percentage (%)				-3%	-6%						-1%	-2%
Delay (sec/veh)				43	33						43	18
Delay (sec/veh)					34.1						34.7	
Max queue (ft)				473	473						453	456
							Intersection Delay (sec/veh)				34.4	

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	60	789	192	260	1,036	0	0	579	163
Volume				56	700	180	227	931			488	142
Demand -Simulated Volume				-4	-89	-12	-33	-105			-91	-21
Percentage (%)				-7%	-11%	-6%	-13%	-10%			-16%	-13%
Delay (sec/veh)				60	69	37	80	37			252	159
Delay (sec/veh)					61.9			45.1			231.1	
Max queue (ft)				764	764	781	412	398			1,456	1,485
							Intersection Delay (sec/veh)				93.9	

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	312	830	70	176	99	0	0	0	0
Volume				281	706	64	170	87				
Demand -Simulated Volume				-31	-124	-6	-6	-12				
Percentage (%)				-10%	-15%	-9%	-3%	-12%				
Delay (sec/veh)				69	73	24	26	22				
Delay (sec/veh)					68.7			24.5				
Max queue (ft)				575	575	603	290	133				
							Intersection Delay (sec/veh)				60.0	

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	579	427	0	0	0	0	0	224	12	1217	0	428
Volume				485	384						209	12	1,176		400
Demand -Simulated Volume				-94	-43						-15	0	-41		-28
Percentage (%)				-16%	-10%						-7%	0%	-3%		-7%
Delay (sec/veh)				120	46						164	49	69		59
Delay (sec/veh)					87.8						157.5			66.7	
Max queue (ft)				564	564						764	764	1,821		1,821
										Intersection Delay (sec/veh)				81.1	

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	48	739	51	66	320	0	0	223	86
Volume				40	686	44	62	317			219	80
Demand -Simulated Volume				-8	-53	-7	-4	-3			-4	-6
Percentage (%)				-17%	-7%	-14%	-6%	-1%			-2%	-7%
Delay (sec/veh)				17	18	16	21	21			19	15
Delay (sec/veh)					17.6			20.8			18.2	
Max queue (ft)				219	219	241	347	347			268	284
							Intersection Delay (sec/veh)				18.6	

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	644	223	114	38	0	0	0	80
Volume					592	204	94	42				81
Demand -Simulated Volume					-52	-19	-20	4				1
Percentage (%)					-8%	-9%	-18%	11%				1%
Delay (sec/veh)					0	0	7	16				9
Delay (sec/veh)					0.2			9.5			9.4	
Max queue (ft)					0	0	90	93				91
							Intersection Delay (sec/veh)				2.2	

PM Existing: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	175	1,056	23	0	0	0	0	116	33	108	131	0
Volume	173	1,055	21					110	29	96	122	
Demand -Simulated Volume	-2	-1	-2					-6	-4	-12	-9	
Percentage (%)	-1%	0%	-9%					-5%	-12%	-11%	-7%	
Delay (sec/veh)	14	13	12					45	26	72	55	
Delay (sec/veh)		13.0						41.2			62.6	
Max queue (ft)	281	281	307					222	254	358	342	
							Intersection Delay (sec/veh)				22.2	

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	181	980	36	0	0	0	0	137	278	0	0	0
Volume	151	980	46					131	253			
Demand -Simulated Volume	-30	0	10					-6	-25			
Percentage (%)	-17%	0%	28%					-4%	-9%			
Delay (sec/veh)	13	16	16					43	31			
Delay (sec/veh)		15.9						34.9				
Max queue (ft)	411	411	399					456	478			
							Intersection Delay (sec/veh)				20.6	

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,201	57	0	0	0	0	0	0	1,240	515	0
Volume		1,183	64							1,149	466	
Demand -Simulated Volume		-18	7							-91	-49	
Percentage (%)		-1%	12%							-7%	-10%	
Delay (sec/veh)		35	34							22	21	
Delay (sec/veh)		35.3									21.7	
Max queue (ft)		485	519							380	380	
							Intersection Delay (sec/veh)				27.7	

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	81	1,424	69	0	0	0	0	439	311	21	382	0
Volume	82	1,375	69					354	272	22	357	
Demand -Simulated Volume	1	-49	0					-85	-39	1	-25	
Percentage (%)	1%	-3%	0%					-19%	-13%	5%	-7%	
Delay (sec/veh)	24	21	26					345	276	23	26	
Delay (sec/veh)		21.5						315.2			26.3	
Max queue (ft)	479	479	37					3,577	3,577	59	375	
							Intersection Delay (sec/veh)				94.9	

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	304	1,090	362	0	0	0	0	889	84	158	379	0
Volume	276	1,015	344					727	72	158	379	
Demand -Simulated Volume	-28	-75	-18					-162	-12	0	0	
Percentage (%)	-9%	-7%	-5%					-18%	-14%	0%	0%	
Delay (sec/veh)	29	26	27					242	227	77	33	
Delay (sec/veh)		27.0						240.8			45.6	
Max queue (ft)	549	549	567					2,561	2,588	373	373	
							Intersection Delay (sec/veh)				87.8	

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,005	327	0	0	0	0	0	0	142	733	0
Volume		958	307							142	705	
Demand -Simulated Volume		-47	-20							0	-28	
Percentage (%)		-5%	-6%							0%	-4%	
Delay (sec/veh)		34	32							25	27	
Delay (sec/veh)		33.6									26.8	
Max queue (ft)		448	473							376	376	
							Intersection Delay (sec/veh)				30.9	

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	265	882	0	0	0	0	0	702	52	0	0	0
Volume	250	848						668	58			
Demand -Simulated Volume	-15	-34						-34	6			
Percentage (%)	-6%	-4%						-5%	12%			
Delay (sec/veh)	8	6						50	31			
Delay (sec/veh)		6.0						48.5				
Max queue (ft)	216	216						560	562			
							Intersection Delay (sec/veh)				23.0	

PM Existing: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,019	114	438	529	0	0	0	0
Volume					1,018	117	406	492				
Demand -Simulated Volume					-1	3	-32	-37				
Percentage (%)					0%	3%	-7%	-7%				
Delay (sec/veh)					25	24	62	35				
Delay (sec/veh)					24.8			47.5				
Max queue (ft)					427	445	338	338				
							Intersection Delay (sec/veh)				34.8	

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	214	1,243	0	0	0	0	0	661	293
Volume				211	1,198						650	294
Demand -Simulated Volume				-3	-45						-11	1
Percentage (%)				-1%	-4%						-2%	0%
Delay (sec/veh)				29	30						51	24
Delay (sec/veh)				30.1						42.2		
Max queue (ft)				482	482						463	465
							Intersection Delay (sec/veh)				35.0	

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	79	1,238	219	335	858	0	0	458	337
Volume				83	1,185	214	276	704			446	332
Demand -Simulated Volume				4	-53	-5	-59	-154			-12	-5
Percentage (%)				5%	-4%	-2%	-18%	-18%			-3%	-1%
Delay (sec/veh)				56	54	53	49	30			92	66
Delay (sec/veh)				53.8			35.7			80.7		
Max queue (ft)				764	764	781	393	379			761	790
							Intersection Delay (sec/veh)				54.8	

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	403	1,198	309	296	224	0	0	0	0
Volume				378	1,111	284	246	189				
Demand -Simulated Volume				-25	-87	-25	-50	-35				
Percentage (%)				-6%	-7%	-8%	-17%	-16%				
Delay (sec/veh)				34	28	23	28	23				
Delay (sec/veh)				28.3			25.8					
Max queue (ft)				532	532	560	381	310				
							Intersection Delay (sec/veh)				27.8	

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	621	873	0	0	0	0	0	246	33	888	0	951
Volume				571	793						233	35	817		891
Demand -Simulated Volume				-50	-80						-13	2	-71		-60
Percentage (%)				-8%	-9%						-5%	6%	-8%		-6%
Delay (sec/veh)				69	54						234	67	123		136
Delay (sec/veh)				60.4						212.1			129.7		
Max queue (ft)				557	557						874	874	4,745		4,745
										Intersection Delay (sec/veh)			108.0		

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	57	1,677	90	96	195	0	0	182	59
Volume				43	1,543	84	92	191			176	52
Demand -Simulated Volume				-14	-134	-6	-4	-4			-6	-7
Percentage (%)				-25%	-8%	-7%	-4%	-2%			-3%	-12%
Delay (sec/veh)				15	15	17	20	21			32	23
Delay (sec/veh)				15.3			20.4			29.9		
Max queue (ft)				375	375	396	297	297			291	307
							Intersection Delay (sec/veh)				17.5	

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,484	373	260	58	0	0	0	80
Volume					1,378	335	213	68				81
Demand -Simulated Volume					-106	-38	-47	10				1
Percentage (%)					-7%	-10%	-18%	17%				1%
Delay (sec/veh)					0	1	12	28				16
Delay (sec/veh)				0.4			15.7			16.2		
Max queue (ft)					0	0	182	127				104
							Intersection Delay (sec/veh)				3.1	

Appendix C: Traffic Signal Timing Sheets

TOD Schedule Report
for 2244: S Miami Av&S 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2244	S Miami Av&S 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	NBT	-	EBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
	Phase Bank 1 2 3							
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	50 - 50 - 50	70 - 70 - 70	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	7 - 7 - 7	7 - 7 - 7	1 - 1 - 1	50 - 70 - 70	80 - 80 - 80	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 NBT	3 -	4 EBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	32	0	76	0	0	0	0	0	89
	3	80	0	42	0	26	0	0	0	0	0	76
	4	70	0	19	0	39	0	0	0	0	0	58
	6	110	0	27	0	71	0	0	0	0	0	11
	7	130	0	32	0	86	0	0	0	0	0	95
	8	120	0	32	0	76	0	0	0	0	0	107
	9	90	0	32	0	46	0	0	0	0	0	80
	18	80	0	29	0	39	0	0	0	0	0	5
	19	90	0	29	0	49	0	0	0	0	0	69
	20	110	0	44	0	54	0	0	0	0	0	109
	21	100	0	39	0	49	0	0	0	0	0	5

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	M T W Th F
0330	Free	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

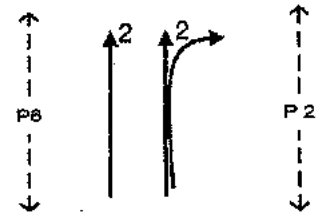
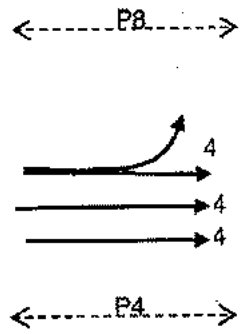
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

	Direction	SB			NB			WB			EB			Ped Heads				Movements/Display/Actuation
Timing Phases	Head No.				2						4			P2	P4	P6	P8	
(2)	Dwell				G						R			W/F	DW	W/F	DW	
NBT	4				Y						R			DW	DW	DW	DW	
S. Miami. Av	clear to																	
RECALL																		
(4)	Dwell				R						G			DW	W/F	DW	W/F	
EBT	2				R						Y			DW	DW	DW	DW	
S 8 St	clear to																	
RECALL																		
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
	Dwell																	
	clear to																	
Flashing Operation					FR						FR							Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	S.MIAMI Av & S 8 St		
Mario L. Hernandez	10/22/2012			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	10/22/12	Date / By	5	2244

QuadPPConcPeds

TOD Schedule Report
for 3449: S Miami Av&S 7 St

Print Date: 1/23/2014

Print Time: 8:14 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3449	S Miami Av&S 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	NBT	-	WBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
	Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	6 - 6 - 6	7 - 7 - 7	1 - 1 - 1	60 - 41 - 41	0 - 42 - 42	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 WBT	4 - 4 - 4	6 - 6 - 6	4 - 4 - 4	1 - 1 - 1	30 - 41 - 41	255 - 255 - 25	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 NBT	3 -	4 WBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	49	0	59	0	0	0	0	0	104
	3	80	0	24	0	44	0	0	0	0	0	76
	4	70	0	34	0	24	0	0	0	0	0	66
	6	110	0	44	0	54	0	0	0	0	0	16
	7	130	0	49	0	69	0	0	0	0	0	78
	8	120	0	49	0	59	0	0	0	0	0	28
	9	90	0	49	0	29	0	0	0	0	0	68
	18	80	0	50	0	18	0	0	0	0	0	0
	19	90	0	29	0	49	0	0	0	0	0	38
	20	110	0	34	0	64	0	0	0	0	0	0
	21	100	0	34	0	54	0	0	0	0	0	0

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	Free	Su S
1930	8	M T W Th F
2130	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	VEH MAX RECALL	----4---	M T W ThF
0545	VEH MAX RECALL	--------	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0500	VEH MAX RECALL	----4---	M T W ThF
0545	VEH MAX RECALL	--------	M T W ThF

*** Settings**

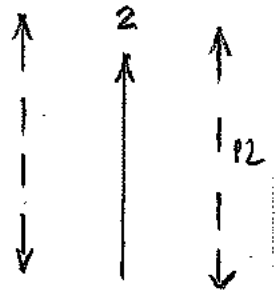
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

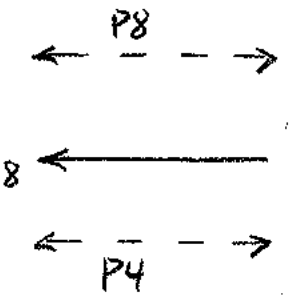
PHASE		INT		2							8				P2	P4	P6	P8
		R/W		G							R				W	DW	W	DW
		PED. CL.		G							R				FO_W	DW	FO_W	DW
		TO	4	Y							R				DW	DW	DW	DW
		CLEAR																

Φ2 (2)
NB
MIAMI AV
RECALL



		R/W		R							G				DW	W	DW	W
		PED. CL.		R							G				DW	FO_W	DW	FO_W
		TO	2	R							Y				DW	DW	DW	DW
		CLEAR																

Φ4 (8)
WB
S. 7 ST
RECALL



		R/W																
		TO																
		CLEAR																

		R/W																
		TO																
		CLEAR																
FLASH. OPER. →				R							Y							

Drawn	Date
H. HERNANDEZ	12/13/95
Check	**Date**
F. PRATS	12/13/95
Division Engineer	**Date**

METROPOLITAN DADE COUNTY
DEPARTMENT OF PUBLIC WORKS

ASSET NO: 3449

S MIAMI AV & S 7 ST

Placed in Service		Phasing Number
Date: EARLY 192	By:	4

TOD Schedule Report

for 5405: SE 8 St@S Miami Av-SE 1 Av

Print Date: 1/23/2014

Print Time: 8:23 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
5405	SE 8 St@S Miami Av-SE 1 Av	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	EBT	-	PED	-	-	-	-
0	0	0	0	0	0	0	0
	→		N/A				

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	55 - 55 - 55	0 - 0 - 0	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 PED	7 - 7 - 7	11 - 11 - 11	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 EBT	3 -	4 PED	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	110	0	89	0	15	0	0	0	0	0	71
	3	80	0	59	0	15	0	0	0	0	0	1
	4	70	0	49	0	15	0	0	0	0	0	64
	6	100	0	79	0	15	0	0	0	0	0	86
	7	115	0	94	0	15	0	0	0	0	0	39
	8	100	0	79	0	15	0	0	0	0	0	41
	9	70	0	49	0	15	0	0	0	0	0	37
	18	80	0	59	0	15	0	0	0	0	0	56
	19	90	0	69	0	15	0	0	0	0	0	38
	20	110	0	89	0	15	0	0	0	0	0	68
	21	100	0	79	0	15	0	0	0	0	0	72

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

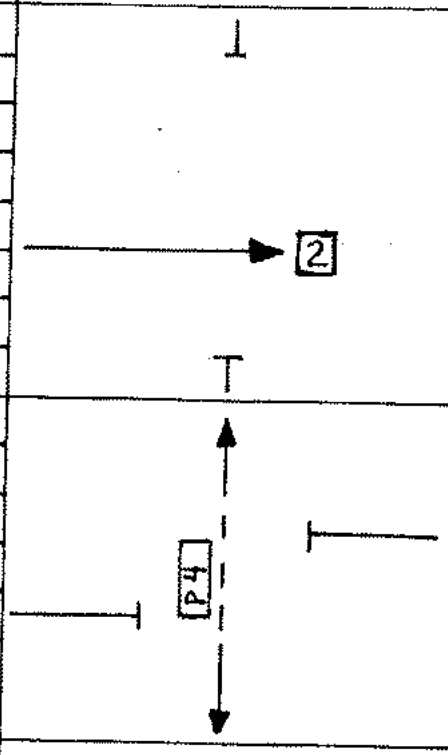
No Calendar Defined/Enabled

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER				
Ø2 EB SE 8 ST (RECALL)	INT	2			P4	
	R/W	G			DW	
	X-PED	Y			DW	
	CLEAR TO	R			DW	
EXCLUSIVE PEDESTRIAN (ACTUATED)	R/W	R			W	
	PED. CL.	R			FDW	
	CLEAR TO Ø2	R			DW	
	R/W					
	CLEAR TO					
	R/W					
FLASH. OPER. →	CLEAR TO	Y				



Drawn: H. HERNANDEZ	Date: 1/16/96	METROPOLITAN DADE COUNTY DEPARTMENT OF TRAFFIC AND TRANSPORTATION
Check: J. C.	Date: 1/16/96	ASSET NO: 5405
Division Engineer	Date	SE 8ST / SE 1AV & MIAMI AV
		Placed in Service Date: MID '92 — Phasing Number

TOD Schedule Report
for 2245: SW 1 Av E&SW 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2245	SW 1 Av E&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	EBT	-	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk (Phase Bank 1 2 3)	Don't Walk (1 2 3)	Min Initial (1 2 3)	Veh Ext (1 2 3)	Max Limit (1 2 3)	Max 2 (1 2 3)	Yellow	Red
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	70 - 70 - 70	70 - 70 - 70	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 SBT	7 - 7 - 7	9 - 9 - 9	7 - 7 - 7	1 - 1 - 1	45 - 45 - 45	85 - 85 - 85	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 EBT	3 -	4 SBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	83	0	25	0	0	0	0	0	46
	3	80	0	44	0	24	0	0	0	0	0	50
	4	70	0	37	0	21	0	0	0	0	0	9
	6	110	0	58	0	40	0	0	0	0	0	61
	7	130	0	74	0	44	0	0	0	0	0	35
	8	120	0	64	0	44	0	0	0	0	0	51
	9	90	0	39	0	39	0	0	0	0	0	18
	18	80	0	43	0	25	0	0	0	0	0	23
	19	90	0	53	0	25	0	0	0	0	0	21
	20	110	0	73	0	25	0	0	0	0	0	48
	21	100	0	63	0	25	0	0	0	0	0	44

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

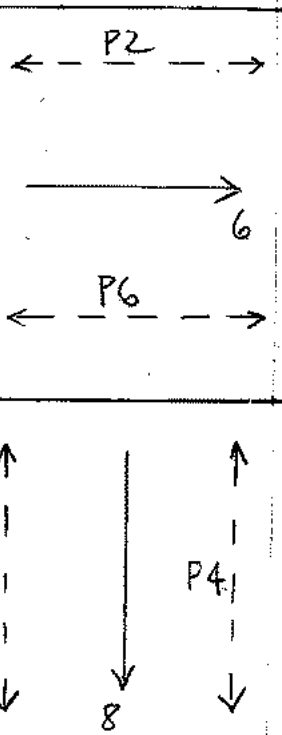
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

PHASE	INT	SIGNAL HEAD NUMBER										P2	P4	P6	P8
	R/W					G		R				W	DW	W	DW
	PED CL					G		R				FDW	DW	FDW	DW
ϕ2 (6) EB SW 8 ST (RECALL)	TO ϕ4					Y		R				DW	DW	DW	DW
	CLEAR														
	R/W					R		G				DW	W	DW	W
ϕ4 (8) SB SW 1 AV (RECALL)	PED CL					R		G				DW	FDW	DW	FDW
	TO ϕ2					R		Y				DW	DW	DW	DW
	CLEAR														
	R/W														
	TO														
	CLEAR														
	R/W														
	TO														
FLASH. OPER. →	CLEAR					Y		R							



Drawn	Date
H. HERNANDEZ	12/13/95
Check	**Date**
F. PEREZ	12/13/95
Division Engineer	**Date**

METROPOLITAN DADE COUNTY
DEPARTMENT OF PUBLIC WORKS

ASSET NO: 2245

SW 1 AV @ 8 ST (E)

Placed in Service		Phasing Number
Date: EARLY '92	By:	5

TOD Schedule Report

for 4658: Sunset Dr&SW 127 Av

Print Date: 3/17/2014

Print Time: 8:09 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
4658	Sunset Dr&SW 127 Av	DOW-2		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
EBL	WBT	SBL	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
		Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	15 - 5 - 20	40 - 7 - 20	3	0
2	WBT	7 - 7 - 0	20 - 20 - 0	7 - 7 - 18	1 - 1 - 1	30 - 25 - 0	0 - 35 - 0	4	1.8
3	SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	15 - 5 - 20	25 - 7 - 20	3	0
4	NBT	7 - 7 - 0	20 - 20 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	35 - 15 - 40	50 - 25 - 40	4	1.5
5	WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	15 - 5 - 20	45 - 7 - 20	3	0
6	EBT	7 - 7 - 0	20 - 20 - 0	7 - 7 - 18	1 - 1 - 1	30 - 25 - 0	0 - 35 - 0	4	1.8
7	NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	15 - 5 - 20	25 - 7 - 20	3	0
8	SBT	7 - 7 - 0	20 - 20 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	35 - 15 - 40	50 - 25 - 40	4	1.5

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12345678
External Permit 0	--------
External Permit 1	-234-6-8
External Permit 2	-234-6-8

Current TOD Schedule	Plan	Cycle	Green Time 1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT	Ring Offset	Offset
	2	120	14	44	14	31	14	44	14	31	0	19
	3	150	13	65	20	35	13	65	20	35	0	94
	4	200	20	80	48	35	16	84	48	35	0	42
	5	180	10	94	14	45	40	64	14	45	0	8
	7	120	11	25	42	25	11	25	42	25	0	84
	9	180	23	86	20	34	23	86	20	34	0	48
	10	150	8	79	21	25	8	79	21	25	0	102
	11	100	8	43	7	25	8	43	7	25	0	68
	12	130	13	57	13	30	13	57	13	30	0	62
	13	120	8	59	13	23	8	59	13	23	0	84
	14	150	8	72	23	30	8	72	23	30	0	95
	15	150	13	80	15	25	13	80	15	25	0	102
	17	120	11	56	13	23	11	56	13	23	0	81
	19	150	13	65	20	35	13	65	20	35	0	94
	20	100	8	43	9	23	8	43	9	23	0	68

Local TOD Schedule

Time	Plan	DOW
0000	2	Su S
0000	Free	M T W Th F
0100	Free	Su S
0630	4	M T W Th F
0800	9	M T W Th F
0830	2	Su S
0900	2	M T W Th F
1400	7	M T W Th F
1530	12	M T W Th F
1600	5	M T W Th F
2000	2	M T W Th F
2300	Free	Su M T W Th F S

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-7-----1	SuM T W ThF S
0530	TOD OUTPUTS	-7----2-	M T W ThF
0630	TOD OUTPUTS	-----3--	M T W ThF
0800	TOD OUTPUTS	-7------	M T W ThF
0900	TOD OUTPUTS	-7------	M T W ThF
1400	TOD OUTPUTS	-----3--	M T W ThF
1530	TOD OUTPUTS	-7------	M T W ThF
1600	TOD OUTPUTS	-7------	M T W ThF
2000	TOD OUTPUTS	-7------	M T W ThF
2300	TOD OUTPUTS	-7----2-	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-7-----1	SuM T W ThF S
0100	TOD OUTPUTS	-7-----1	Su S
0530	TOD OUTPUTS	-7----2-	M T W ThF
0630	TOD OUTPUTS	-7----2-	Su S
0630	TOD OUTPUTS	-----3--	M T W ThF
0800	TOD OUTPUTS	-7------	M T W ThF
0830	TOD OUTPUTS	-7------	Su S
0900	TOD OUTPUTS	-7------	M T W ThF
1400	TOD OUTPUTS	-----3--	M T W ThF
1530	TOD OUTPUTS	-7------	M T W ThF
1600	TOD OUTPUTS	-7------	M T W ThF
2000	TOD OUTPUTS	-7------	M T W ThF
2300	TOD OUTPUTS	-7----2-	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

TOD Schedule Report
for 2240: SW 1 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2240	SW 1 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	-	-	-	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	5 - 5 - 5	12 - 12 - 12	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	0 - 45 - 45	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	5 - 5 - 5	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	25 - 25 - 25	75 - 75 - 70	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-----8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 -	5 -	6 -	7 -	8 SBT	Ring Offset	Offset
	1	120	0	53	0	0	0	0	0	55	0	34
	3	80	0	48	0	0	0	0	0	20	0	49
	4	70	0	38	0	0	0	0	0	20	0	35
	6	110	0	47	0	0	0	0	0	51	0	71
	7	130	0	49	0	0	0	0	0	69	0	126
	8	120	0	53	0	0	0	0	0	55	0	83
	9	90	0	49	0	0	0	0	0	29	0	11
	18	80	0	48	0	0	0	0	0	20	0	0
	19	90	0	58	0	0	0	0	0	20	0	0
	20	110	0	78	0	0	0	0	0	20	0	0
	21	100	0	68	0	0	0	0	0	20	0	0
	22	65	0	33	0	0	0	0	0	20	0	8

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	M T W Th F
0330	Free	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

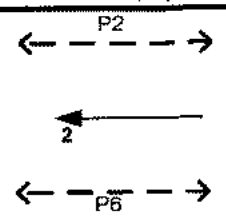
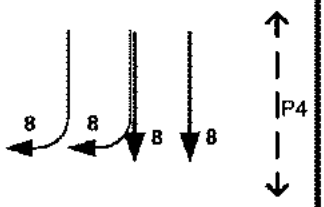
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

	Direction	WB		EB		NB		SB		Ped Heads			Movements/Display/Actuation
Timing Phases	Head No.	2						8		P2	P4	P6	
(2) WB SW 7 ST	Dwell	G						R		W/F	DW	W/F	
	Clear to 8	Y						R		DW	DW	DW	
RECALL													
(8) SW 1 Av	Dwell	R						G		DW	W/F	DW	
	Clear to 2	R						Y		DW	DW	DW	
RECALL													
	Dwell												
	Clear to												
	Dwell												
	Clear to												
	Dwell												
	Clear to												
	Dwell												
	Clear to												
Flashing Operation		FY						FR					Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date			
Mario L. Hernandez	4/20/11	**SW 1 Av & SW 7 St**		
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	4/21/11	Date 04/26/2011 By HPE	5	2240

QuadPPConcPeds

TOD Schedule Report
for 2241: SW 2 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2241	SW 2 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	NBL	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	1 - 1 - 1	35 - 25 - 25	0 - 60 - 60	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	10 - 8 - 8	7 - 7 - 7	1 - 1 - 1	25 - 15 - 15	75 - 75 - 75	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 NBL	7 - 7 - 7	18 - 18 - 18	5 - 5 - 5	2 - 2 - 2	15 - 15 - 15	30 - 30 - 30	4	0
8 SBT	7 - 7 - 7	10 - 8 - 8	7 - 7 - 7	1 - 1 - 1	25 - 15 - 15	60 - 60 - 60	4	2

Current TOD Schedule	Plan	Cycle	Green Time 1	2	3	4	5	6	7	8	Ring Offset	Offset
			-	WBT	-	NBT	-	-	NBL	SBT		
	1	120	0	54	0	54	0	0	26	24	0	46
	3	80	0	44	0	24	0	0	6	14	0	46
	4	70	0	31	0	27	0	0	9	14	0	39
	6	110	0	44	0	54	0	0	9	41	0	77
	7	130	0	54	0	64	0	0	26	34	0	25
	8	120	0	54	0	54	0	0	10	40	0	93
	9	90	0	45	0	33	0	0	9	20	0	24
	18	80	0	34	0	34	0	0	12	18	0	3
	19	90	0	42	0	36	0	0	13	19	0	2
	20	110	0	59	0	39	0	0	14	21	0	23
	21	100	0	51	0	37	0	0	12	21	0	24

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4--78
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	Head No.	WB 2	NB 7/4	NB 4	SB 8	Ped Heads P2	P4	P6	P8	Movements/Display/Actuation
(2) WBT SW 7 ST **RECALL**	Dwell		G	R	R	R	W/F	DW	W/F	DW	
	Clear to	(7+4)	Y	R	R	R	DW	DW	DW	DW	
		(4+8)	Y	R	R	R	DW	DW	DW	DW	
		P/E	Y	R	R	R	DW	DW	DW	DW	
(7+4) NBLT+ NBT SW 2 Av **ACTUATED**	Dwell		R	<G/G	G	R	DW	W/F	DW	DW	
	Clear to	(4+8)	R	<Y/G	G	R	DW	DW	DW	DW	
		P/E	R	<Y/Y	Y	R	DW	DW	DW	DW	
(4+8) NBT+SBT SW 2 Av **RECALL**	Dwell		R	G	G	G	DW	W/F	DW	W/F	
	Clear to	(2)	R	Y	Y	Y	DW	DW	DW	DW	
		P/E	R	Y	Y	G	DW	DW	DW	DW	
BRIDGE P/E CLEAR	Dwell		R	R	R	G	DW	DW	DW	DW	
	Clear to	Dwell 1	R	R	R	Y	DW	DW	DW	DW	
		Dwell 2	R	R	R	Y	DW	DW	DW	DW	
		(4+8)	R	R	R	Y	DW	DW	DW	DW	
P/E DWELL 1 WBT SW 7 ST **RECALL**	Dwell		G	R	R	R	W/F	DW	W/F	DW	
	Clear to	Dwell 2	Y	R	R	R	DW	DW	DW	DW	
		(4+8)	Y	R	R	R	DW	DW	DW	DW	
P/E DWELL 2 NBLT SW 2 Av **ACTUATED**	Dwell		R	<G/R	R	R	DW	W/F	DW	DW	
	Clear to	Dwell 1	R	<Y/R	R	R	DW	DW	DW	DW	
		(4+8)	R	<Y/R	R	R	DW	DW	DW	DW	
Flashing Operation			FY	FR	FR	FR					Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	SW 2 Av & SW 7 St		
Mario L. Hernandez	9/6/2012			
Checked H. Hernandez	Date 12/3/12	Placed in Service Date	By	Phasing No. 10	Asset Number 2241

TOD Schedule Report
for 2246: SW 2 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:06 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2246	SW 2 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
SBL	NBT	-	EBT	-	SBT	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
		Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	1 - 1 - 1	10 - 5 - 5	28 - 28 - 28	4	0
2	NBT	4 - 4 - 4	8 - 8 - 8	4 - 4 - 4	1 - 1 - 1	35 - 19 - 19	0 - 72 - 72	4	2.3
3	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4	EBT	7 - 7 - 7	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	40 - 24 - 24	88 - 88 - 88	4	2.3
5	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6	SBT	4 - 4 - 4	8 - 8 - 8	4 - 4 - 4	1 - 1 - 1	35 - 19 - 19	0 - 72 - 72	4	2.3
7	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12-4-6--
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 SBL	2 NBT	3 -	4 EBT	5 -	6 SBT	7 -	8 -	Ring Offset	Offset
	1	120	8	32	0	64	0	44	0	0	0	76
	3	80	13	20	0	31	0	37	0	0	0	10
	4	70	7	23	0	24	0	34	0	0	0	25
	6	110	8	22	0	64	0	34	0	0	0	100
	7	130	11	29	0	74	0	44	0	0	0	95
	8	120	11	35	0	58	0	50	0	0	0	96
	9	90	7	33	0	34	0	44	0	0	0	51
	18	80	7	13	0	44	0	24	0	0	0	39
	19	90	7	23	0	44	0	34	0	0	0	40
	20	110	8	27	0	59	0	39	0	0	0	68
	21	100	8	17	0	59	0	29	0	0	0	59
	22	65	6	15	0	28	0	25	0	0	0	58
	23	65	7	20	0	22	0	31	0	0	0	50

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

*** Settings**

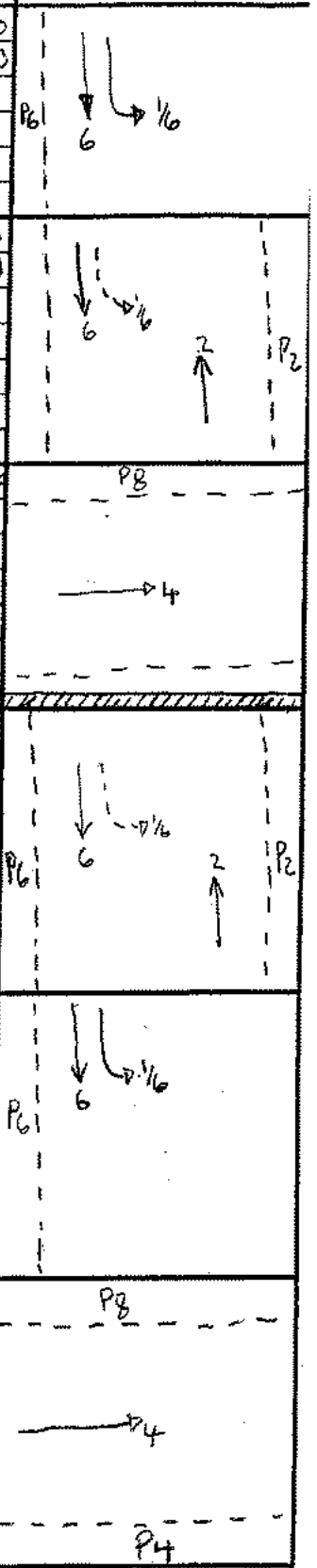
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

	Direction	SB		NB	EB	Ped Heads				
Timing Phases	Head No.	1/6	6	2	4	2	6	4	8	Movements/Display/Actuation
LEAD	Dwell	↓/G	G	R	R	DW	W/F	DW	DW	
1+6	clear to 2+6	↓/G	G	R	R	DW	DW	DW	DW	
SB										
SW 2 AV										
RECALL										
	Dwell	G	G	G	R	W/F	W/F	DW	DW	
2+6	clear to 4	Y	Y	Y	R	DW	DW	DW	DW	
N/S										
SW 2 AV										
RECALL										
	Dwell	R	R	R	G	DW	DW	W/F	W/F	
4	clear to 1+6	R	R	R	Y	DW	DW	DW	DW	
EB										
SW 8 ST										
RECALL										
LAG	Dwell	G	G	G	R	W/F	W/F	DW	DW	
2+6	clear to 1+6	G	G	Y	R	DW	DW	DW	DW	
N/S										
SW 2 AV										
RECALL										
	Dwell	↓/G	G	R	R	DW	W/F	DW	DW	
1+6	clear to 4	↓/Y	Y	R	R	DW	DW	DW	DW	
SB										
SW 2 AV										
RECALL										
	Dwell	R	R	R	G	DW	DW	W/F	W/F	
4	clear to 2+6	R	R	R	Y	DW	DW	DW	DW	
EB										
SW 8 ST										
RECALL										
Flashing Operation		FY	FY	FY	FR					Page 1 of 1



Miami-Dade County Public Works Department

Drawn	Date	SW 2 AV & 8 ST		
H. FRANCILLON	2/18/10			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. HERNANDEZ	2/18/10	Date 2/26/04 By SHOP	6	2246

Blank16

TOD Schedule Report
for 3326: SW 3 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:14 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3326	SW 3 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	-	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk Phase Bank 1 2 3	Don't Walk 1 2 3	Min Initial 1 2 3	Veh Ext 1 2 3	Max Limit 1 2 3	Max 2 1 2 3	Yellow	Red
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 43 - 43	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	7 - 7 - 7	11 - 11 - 11	7 - 7 - 7	2.5 - 2.5 - 2.5	45 - 27 - 27	0 - 43 - 43	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 43 - 43	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	---4-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 -	3 -	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset
	1	120	0	0	0	19	0	89	0	19	0	47
	3	80	0	0	0	13	0	55	0	13	0	26
	4	70	0	0	0	13	0	45	0	13	0	59
	6	110	0	0	0	18	0	80	0	18	0	80
	7	130	0	0	0	36	0	82	0	36	0	58
	8	120	0	0	0	34	0	74	0	34	0	57
	9	90	0	0	0	18	0	60	0	18	0	8
	18	80	0	0	0	17	0	51	0	17	0	0
	19	90	0	0	0	17	0	61	0	17	0	0
	20	110	0	0	0	17	0	81	0	17	0	0
	21	100	0	0	0	24	0	64	0	24	0	0

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	VEH RECALL	8---4---	M T W ThF
0200	VEH RECALL	--------	M T W ThF
0600	VEH RECALL	8---4---	M T W ThF
0730	VEH RECALL	--------	M T W ThF
0730	VEH MAX RECALL	8---4---	M T W ThF
2000	VEH MAX RECALL	--------	M T W ThF
2000	VEH RECALL	8---4---	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	VEH RECALL	8---4---	M T W ThF
0000	VEH RECALL	8---4---	Su S
0200	VEH RECALL	--------	M T W ThF
0330	VEH RECALL	--------	Su S
0600	VEH RECALL	8---4---	Su S
0600	VEH RECALL	8---4---	M T W ThF
0730	VEH RECALL	--------	M T W ThF
0730	VEH MAX RECALL	8---4---	M T W ThF
1000	VEH RECALL	--------	Su S
1000	VEH MAX RECALL	8---4---	Su S
1900	VEH MAX RECALL	--------	Su S
1900	VEH RECALL	8---4---	Su S
2000	VEH MAX RECALL	--------	M T W ThF
2000	VEH RECALL	8---4---	M T W ThF

No Calendar Defined/Enabled

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

STATE PROJ NO.	SHEET NO.
87000-3521	125

SIGNAL HEAD DETAILS

4,6 — R Y G

3-SECTION, 1 WAY
12" STD. LENS
INCLUDING HORIZONTAL MOUNTING BRACKET
6 REQUIRED
ITEM NO. 650-1-13
BACK PLATES
2 REQUIRED FOR SIGNAL HEAD NO. 5 659-101

P2, P4, P8 — DW / W

2 SECTION, 1-WAY
4 REQUIRED
ITEM NO. 653-111
2 SECTION, 2-WAY
2 REQUIRED
ITEM NO. 653-112

SIGN INVENTORY

LEG	ENTER	EXIT
NORTH		* R3-2 (ILL) M1-4, M6-5 M4-5, M03-1(ILL) M3-4
SOUTH		* R3-1 (ILL) M1-4, M6-1 M4-5, M3-2
EAST		R6-1 R6-2 M03-1(ILL)
WEST	R7-1078 R6-1(2) R7-4	

* PROPOSED SIGN

A — ILL. NO LEFT TURN WITH HORIZONTAL MOUNTING BRACKET 1 REQUIRED ITEM NO. 700-89-1

A — ILL. NO RIGHT TURN WITH HORIZONTAL MOUNTING BRACKET 1 REQUIRED ITEM NO. 700-89-1

A S.W. 8 ST. — A S.W. 3 AVE.

ILLUMINATED STREET NAME SIGNS 2 REQUIRED
ITEM NO. 700-89-1

1976 PEAK HOUR VOLUMES

A.M. / P.M.

1382 27 1295 — 1467 — 705 63 642 — 707

158 172 330 — 185 — 244 — 61 85 1246

SCALE 1"=20'

BUILDING

S.W. 3 AVE.

R/W LINE — SWK — 6' SWK — 2' GUTTER

ONE WAY →

S.W. 8 ST.

EMERGENCY PHONE TO BE RELOCATED ON NEW POLE BY CITY OF MIAMI

SAME TRENCH

LPC 17'-0"

I-95 N.B. ON-RAMP — 260'R

ONE WAY

BUILDING

SERVICE

FP&L & S.B.T.T. SERVICE POINT 630-1

CATEGORY II

S.W. 8 ST. & S.W. 3 AVE.

INTERSECTION IDENTIFICATION NO. 33328

NOTES:

1. SHIELDED LOOP WIRE TO BE INSTALLED TO CONTROLLER AS PART OF ITEM NO. 660-13
2. CONTRACTOR TO MAINTAIN INTERCONNECTED OPERATION WHILE TEMPORARY CONTROLLER IS IN OPERATION AND WITH NEW CONTROLLER UNTIL INTERSECTION IS CONNECTED TO COMPUTER SYSTEM.
3. ITEM NO. 715-74 INCLUDES ELECTRICAL CABLES WITH ALL CONDUCTORS NECESSARY TO COMPLETE THE CIRCUIT, AN ELECTRICAL PULL BOX EQUIPPED WITH A WATERTIGHT TWO POLE 60 AMP FUSE KIT (TYPE AND ENCLOSURE AS REQUIRED BY FP&L) AT THE BASE OF EACH POLE WHICH HAS AN ILLUMINATED STREET NAME SIGN AND THE ELECTRICAL CONDUIT INSIDE THE POLE.
4. INSTALL NO. 6 AWG COPPER THW WIRE
5. P6 was removed

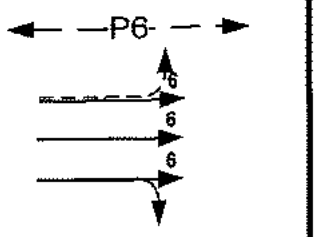
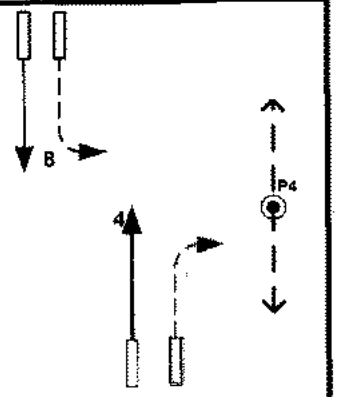
3326
24

24

File No.: 82127P4LOWSheet No.:15 Scale:1 : 400 Drawn by: CML Date:

SIGNAL OPERATING PLAN

N

	Direction	EB	NB	SB		Ped Heads		
Timing Phases	Head No.	6	4	8		P4	P6	Movements/Display/Actuation
(6)	Dwell	G	R	R		DW	W/F	
EB	4+8	Y	R	R		DW	DW	
SW 8 ST	Clear to							
RECALL								
(4 + 8)	Dwell	R	G	G		W/F	DW	
NB/SB	6	R	Y	Y		DW	DW	
SW 3 AV	Clear to							
ACTUATED								
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	ear t							
	Dwell							
	Clear to							
Flashing Operation		FY	FR	FR				Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	SW 3 Av & SW 8 St		
Mario L. Hernandez	3/20/2012			
Checked	Date	Placed in Service	Phasing No.	Asset Number
H. Hernandez	3/21/12	Date 03/19/2012	4	3326

QuadPPConcPeds

TOD Schedule Report
for 3450: SW 3 Av&SW 7 St

Print Date: 1/23/2014

Print Time: 8:15 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3450	SW 3 Av&SW 7 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	1 - 1 - 1	50 - 25 - 25	0 - 41 - 41	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	7 - 7 - 7	6 - 6 - 6	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 12 - 12	45 - 41 - 41	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 NBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	76	0	32	0	0	0	0	0	59
	3	80	0	56	0	12	0	0	0	0	0	14
	4	70	0	46	0	12	0	0	0	0	0	57
	6	110	0	71	0	27	0	0	0	0	0	102
	7	130	0	86	0	32	0	0	0	0	0	31
	8	120	0	76	0	32	0	0	0	0	0	118
	9	90	0	54	0	24	0	0	0	0	0	42
	18	80	0	54	0	14	0	0	0	0	0	27
	19	90	0	64	0	14	0	0	0	0	0	43
	20	110	0	84	0	14	0	0	0	0	0	23
	21	100	0	74	0	14	0	0	0	0	0	31

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0500	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

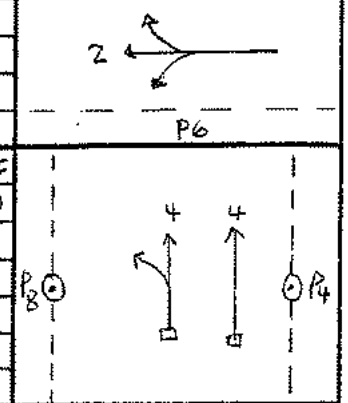
No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases		Direction	WB	NB
		Head No.	2	4
2 WB SW 7 ST RECALL	Dwell		G	R
	Clear to	4	Y	R
4 NB SW 3 AV ACTUATED	Dwell		R	G
	Clear to	2	R	Y
	Dwell			
	Clear to			
	Dwell			
	Clear to			
	Dwell			
	Clear to			
	Dwell			
	Clear to			
Flashing Operation			FY	FR

Ped Heads				Movements/Display/Actuation
P2	P6	P4	P8	
W/F	W/F	DW	DW	P2
DW	DW	DW	DW	
DW	DW	W/F	W/F	P6
DW	DW	DW	DW	



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Miami-Dade County Public Works Department

SW 3 AV & SW 7 ST

Drawn	Date	Placed in Service		Phasing No.	Asset Number
H. FRANCILLON	9/16/05	Date	By SHOP	3	3450
Checked H. HERNANDEZ	Date 9/19/05				

Blank12

TOD Schedule Report
for 3381: SW 4 Av&SW 7 St

Print Date: 1/17/2014

Print Time: 8:09 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3381	SW 4 Av&SW 7 St	DOW-6		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	SWT	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
	Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	7 - 7 - 7	10 - 10 - 10	7 - 7 - 7	1 - 1 - 1	45 - 19 - 19	0 - 57 - 57	4	2.5
3 SWT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	3 - 3 - 3	25 - 12 - 12	85 - 85 - 85	4.3	2.7
4 SBT	7 - 7 - 7	5 - 5 - 5	7 - 7 - 7	2.5 - 2.5 - 2.5	15 - 12 - 12	25 - 16 - 16	4	3.2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-234----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1	2	3	4	5	6	7	8	Ring Offset	Offset
			-	WBT	SWT	SBT	-	-	-	-		
	1	120	0	32	55	12	0	0	0	0	0	56
	3	80	0	27	20	12	0	0	0	0	0	76
	4	70	0	18	20	11	0	0	0	0	0	47
	6	110	0	33	43	13	0	0	0	0	0	109
	7	130	0	42	55	12	0	0	0	0	0	126
	8	120	0	42	45	12	0	0	0	0	0	119
	9	90	0	28	29	12	0	0	0	0	0	64
	18	80	0	13	35	11	0	0	0	0	0	0
	19	90	0	22	35	12	0	0	0	0	0	0
	20	110	0	42	35	12	0	0	0	0	0	0
	21	100	0	32	35	12	0	0	0	0	0	0
	24	140	0	65	40	14	0	0	0	0	0	114
	25	140	0	64	40	15	0	0	0	0	0	114
	26	120	0	46	40	13	0	0	0	0	0	114
	27	120	0	46	40	13	0	0	0	0	0	114
	28	130	0	56	40	13	0	0	0	0	0	114
	29	130	0	56	40	13	0	0	0	0	0	114

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

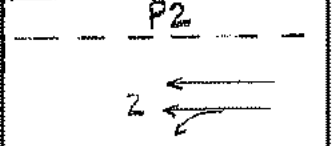
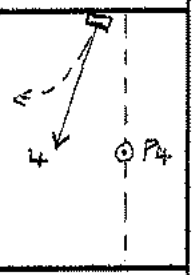
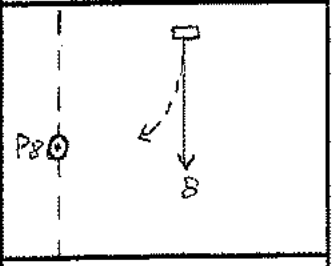
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction	WB	SWB	SB	Ped Heads P2	Ped Heads P4	Ped Heads P8	Movements/Display/Actuation
2 WBND SW 7 ST (RECALL)	Head No.	2	4	8				
	Dwell	G	R	R	W/F	DW	DW	
	Clear to 3	Y	R	R	DW	DW	DW	
	Clear to 4	Y	R	R	DW	DW	DW	
3 SWBND I-95 OFF RAMP (ACTUATED)	Dwell	R	G	R	DW	W/F	DW	
	Clear to 4	R	Y	R	DW	DW	DW	
	Clear to 2	R	Y	R	DW	DW	DW	
4 SBND SW 4 AV (ACTUATED)	Dwell	R	R	G	DW	DW	W/F	
	Clear to 2	R	R	Y	DW	DW	DW	
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
Flashing Operation		FY	FR	FR				Page 1 of 1

Miami-Dade County Public Works Department

Drawn	Date	SW 4 AVE & SW 7ST & I-95 OFF RAMP		
H. FRANCILLON	8/22/05			
Checked	Date	Placed in Service	Phasing No.	Asset Number
	8/22/05	Date / By TCD	4	3381

Blank12

TOD Schedule Report
for 3327: SW 4 Av&SW 8 St

Print Date: 1/17/2014

Print Time: 8:08 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
3327	SW 4 Av&SW 8 St	DOW-6		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	EBT	-	SBT	-	-	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
	Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	2 - 2 - 2	50 - 24 - 24	0 - 71 - 71	4	2.7
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 SBT	7 - 7 - 7	13 - 13 - 13	7 - 7 - 7	2.5 - 2.5 - 2.5	50 - 24 - 24	70 - 71 - 71	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4----
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 EBT	3 -	4 SBT	5 -	6 -	7 -	8 -	Ring Offset	Offset
	1	120	0	44	0	63	0	0	0	0	0	48
	3	80	0	24	0	43	0	0	0	0	0	36
	4	70	0	40	0	17	0	0	0	0	0	41
	6	110	0	44	0	53	0	0	0	0	0	109
	7	130	0	54	0	63	0	0	0	0	0	122
	8	120	0	54	0	53	0	0	0	0	0	119
	9	90	0	39	0	38	0	0	0	0	0	62
	18	80	0	24	0	43	0	0	0	0	0	0
	19	90	0	34	0	43	0	0	0	0	0	0
	20	110	0	54	0	43	0	0	0	0	0	0
	21	100	0	44	0	43	0	0	0	0	0	0
	24	140	0	69	0	58	0	0	0	0	0	104
	25	140	0	69	0	58	0	0	0	0	0	104
	26	120	0	49	0	58	0	0	0	0	0	104
	27	120	0	49	0	58	0	0	0	0	0	104
	28	130	0	59	0	58	0	0	0	0	0	104
	29	130	0	59	0	58	0	0	0	0	0	104

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

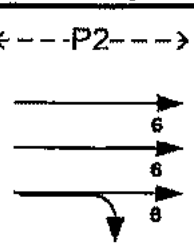
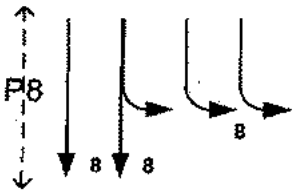
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

SIGNAL OPERATING PLAN

N

Timing Phases	Direction / Head No.	EB 6	WB	SB 8	NB	Ped Heads P2	Ped Heads P8	Movements/Display/Actuation
(2) EB SW 8 ST **RECALL**	Dwell	G		R		W/F	DW	
	Clear to 4	Y		R		DW	DW	
(4) SB SW 4 Av **RECALL**	Dwell	R		G		DW	W/F	
	Clear to 2	R		Y		DW	DW	
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
	Dwell							
	Clear to							
Flashing Operation		FY		FR				Page 1 of 1

MIAMI-DADE COUNTY PUBLIC WORK DEPARMENT

Drawn	Date	SW 4 Av & SW 8 St		
Mario L. Hernandez	5/28/2011			
Checked H. Hernandez	Date 6/29/11	Placed in Service Date 07/11/2011 By AGC	Phasing No. 5	Asset Number 3327

QuadPPConoPeds

TOD Schedule Report
for 4388: SW 5 Av&SW 8 St

Print Date: 1/23/2014

Print Time: 8:19 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
4388	SW 5 Av&SW 8 St	DOW-5		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	-	NBT	-	EBT	-	-
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
Phase Bank	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	6 - 6 - 6	10 - 10 - 10	7 - 7 - 7	2.5 - 2.5 - 2.5	25 - 15 - 15	50 - 50 - 50	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	10 - 10 - 10	5 - 5 - 5	10 - 10 - 10	2.5 - 2.5 - 2.5	35 - 35 - 35	0 - 50 - 50	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

	12345678
Default	---4-6--
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 -	3 -	4 NBT	5 -	6 EBT	7 -	8 -	Ring Offset	Offset
	1	120	0	0	0	40	0	68	0	0	0	80
	3	80	0	0	0	20	0	48	0	0	0	79
	4	70	0	0	0	20	0	38	0	0	0	25
	6	110	0	0	0	35	0	63	0	0	0	84
	7	130	0	0	0	40	0	78	0	0	0	79
	8	120	0	0	0	40	0	68	0	0	0	9
	9	90	0	0	0	27	0	51	0	0	0	51
	18	80	0	0	0	22	0	46	0	0	0	0
	19	90	0	0	0	22	0	56	0	0	0	10
	20	110	0	0	0	22	0	76	0	0	0	0
	21	100	0	0	0	22	0	66	0	0	0	0
	24	140	0	0	0	20	0	108	0	0	0	79
	25	140	0	0	0	20	0	108	0	0	0	79
	26	120	0	0	0	20	0	88	0	0	0	79
	27	120	0	0	0	20	0	88	0	0	0	79
	28	130	0	0	0	20	0	98	0	0	0	79
	29	130	0	0	0	20	0	98	0	0	0	79

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Flash	M T W Th F
0330	Flash	Su S
0600	4	M T W Th F
0600	18	Su S
0700	1	M T W Th F
0830	19	Su S
0930	6	M T W Th F
1000	20	Su S
1530	7	M T W Th F
1900	21	Su S
1930	8	M T W Th F
2130	9	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S

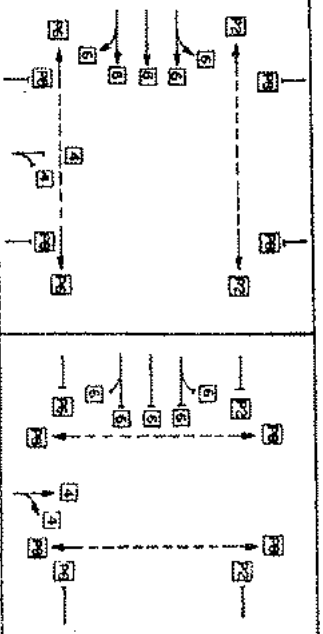
*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

TRAFFIC SIGNAL INTERVAL DIAGRAMS

PHASE	INT	SIGNAL HEAD NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	PEDESTRIAN HEAD NUMBER P2	P4	P6	P8
Ø (6) S.W. 6 ST. (PRE-TIMED)	R/W				R R		G G							W DW	DW DW	W DW	DW DW
	PED. CL.																
	TO Ø2				R		Y							DW	DW	DW	DW
	CLEAR																
Ø (4) S.W. 5 AVE. (PRE-TIMED)	R/W				G G		R R							DW DW	W DW	DW DW	W DW
	PED. CL.																
	TO Ø1				Y		R							DW	DW	DW	DW
	CLEAR																
FL. OP.	R/W																
	TO																
	CLEAR				FR		FY										



Asset # 34388

Drawn	Date
SPERRY	1/79
Check	Date
Division Engineer	Date

METROPOLITAN DADE COUNTY
DEPARTMENT OF TRAFFIC AND TRANSPORTATION

S.W. 5 AVE. & S.W. 8 ST.

Placed in Service	Timing Number	Phasing Number
Date: 1/25/79 By:	—	1

TOD Schedule Report
for 2242: SW 8 Av&SW 7 St

Print Date: 1/25/2014

Print Time: 8:04 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2242	SW 8 Av&SW 7 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	WBT	-	NBT	-	-	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk	Don't Walk	Min Initial	Veh Ext	Max Limit	Max 2	Yellow	Red
		Phase Bank 1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2	WBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	1 - 1 - 1	54 - 54 - 54	0 - 54 - 54	4	2
3	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4	NBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	41 - 41 - 41	51 - 51 - 51	4	2
5	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7	-	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8	SBT	7 - 7 - 7	15 - 15 - 15	7 - 7 - 7	2.5 - 2.5 - 2.5	41 - 41 - 41	51 - 51 - 51	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4---8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 WBT	3 -	4 NBT	5 -	6 -	7 -	8 SBT	Ring Offset	Offset
	2	90	0	53	0	25	0	0	0	25	0	32
	3	90	0	34	0	44	0	0	0	44	0	52
	4	100	0	44	0	44	0	0	0	44	0	50
	5	90	0	53	0	25	0	0	0	25	0	63
	7	120	0	60	0	48	0	0	0	48	0	38
	8	100	0	49	0	39	0	0	0	39	0	54
	11	120	0	69	0	39	0	0	0	39	0	73
	13	100	0	60	0	28	0	0	0	28	0	32
	15	90	0	50	0	28	0	0	0	28	0	72
	18	90	0	40	0	38	0	0	0	38	0	75
	19	100	0	56	0	32	0	0	0	32	0	89
	20	120	0	68	0	40	0	0	0	40	0	45
	21	115	0	78	0	25	0	0	0	25	0	24
	24	120	0	83	0	25	0	0	0	25	0	10
	25	120	0	83	0	25	0	0	0	25	0	10
	26	120	0	83	0	25	0	0	0	25	0	10
	27	120	0	83	0	25	0	0	0	25	0	10
	28	120	0	83	0	25	0	0	0	25	0	10
	29	120	0	83	0	25	0	0	0	25	0	10

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	3	M T W Th F
0600	18	Su S
0700	4	M T W Th F
0800	19	Su S
0915	5	M T W Th F
1100	7	M T W Th F
1100	20	Su S
1330	8	M T W Th F
1530	11	M T W Th F
1600	21	Su S
1930	13	M T W Th F
2030	15	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0700	TOD OUTPUTS	--------	M T W ThF
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

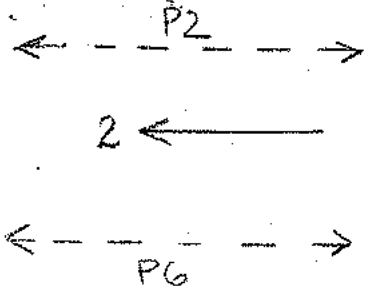
SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER										
	INT		2		4				8	P2	P4	P6	P8
	R/W		G		R				R	W	DW	W	DW
	PED. CL.		G		R				R	FD_W	DW	FD_W	DW
	TO 4+8		Y		R				R	DW	DW	DW	DW
	CLEAR												

$\phi 2$ (2)

WB
SW 7 ST

(RECALL)

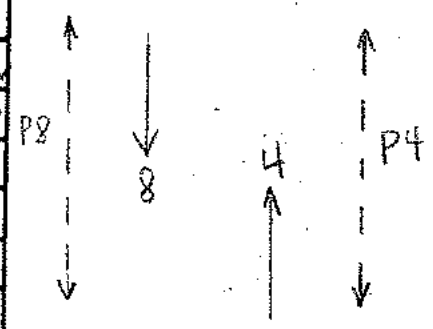


	R/W		R		G				G	DW	W	DW	W
	PED. CL.		R		G				G	DW	FD_W	DW	FD_W
	TO 2		R		Y				Y	DW	DW	DW	DW
	CLEAR												

$\phi(4+8)$

N/S
SW 8 AV

(RECALL)



	R/W												
	PED. CL.												
	TO												
	CLEAR												

	R/W												
	PED. CL.												
	TO												
	CLEAR												
			Y		R				R				

Drawn	Date
H. HERNANDEZ	8/21/96
Check	Date
E Hu	8/21/96
Division Engineer	Date

METROPOLITAN DADE COUNTY
DEPARTMENT OF TRAFFIC AND TRANSPORTATION

ASSET NO. 2242

SW 8 AV & 7 ST

Placed in Service		Phasing Number
Date: 9/4/96	By:	4

TOD Schedule Report
for 2247: SW 8 Av&SW 8 St

Print Date: 1/18/2014

Print Time: 8:03 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2247	SW 8 Av&SW 8 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	-	SBL	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase	Walk Phase Bank 1	Walk Phase Bank 2	Walk Phase Bank 3	Don't Walk Phase Bank 1	Don't Walk Phase Bank 2	Don't Walk Phase Bank 3	Min Initial Phase Bank 1	Min Initial Phase Bank 2	Min Initial Phase Bank 3	Veh Ext Phase Bank 1	Veh Ext Phase Bank 2	Veh Ext Phase Bank 3	Max Limit Phase Bank 1	Max Limit Phase Bank 2	Max Limit Phase Bank 3	Max 2 Phase Bank 1	Max 2 Phase Bank 2	Max 2 Phase Bank 3	Yellow	Red
1 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 SBL	0	0	0	0	0	0	5	5	5	2	2	2	12	12	12	25	17	17	3.4	0
4 NBT	7	7	7	12	12	12	7	7	7	2.5	2.5	2.5	20	20	20	55	55	55	4	2
5 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 EBT	7	7	7	12	12	12	7	7	7	1	1	1	45	45	45	0	45	45	4.3	2
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	7	7	7	12	12	12	7	7	7	1	1	1	20	20	20	55	55	55	4	2

Last In Service Date: unknown

Permitted Phases

	12345678
Default	--34-6-8
External Permit 0	--------
External Permit 1	--------
External Permit 2	--------

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 -	3 SBL	4 NBT	5 -	6 EBT	7 -	8 SBT	Ring Offset	Offset
	2	90	0	0	9	19	0	47	0	31	0	30
	3	90	0	0	12	19	0	44	0	34	0	65
	4	100	0	0	17	24	0	44	0	44	0	50
	5	90	0	0	9	19	0	47	0	31	0	56
	7	120	0	0	13	20	0	72	0	36	0	43
	8	100	0	0	12	19	0	54	0	34	0	52
	11	120	0	0	13	20	0	72	0	36	0	37
	13	100	0	0	12	27	0	46	0	42	0	76
	15	90	0	0	9	19	0	47	0	31	0	81
	18	90	0	0	10	34	0	31	0	47	0	62
	19	100	0	0	15	28	0	42	0	46	0	74
	20	120	0	0	22	24	0	59	0	49	0	24
	21	115	0	0	12	21	0	67	0	36	0	20
	24	120	0	0	12	21	0	72	0	36	0	7
	25	120	0	0	12	21	0	72	0	36	0	7
	26	120	0	0	12	21	0	72	0	36	0	7
	27	120	0	0	12	21	0	72	0	36	0	7
	28	130	0	0	12	21	0	82	0	36	0	7
	29	130	0	0	12	21	0	82	0	36	0	7

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0600	3	M T W Th F
0600	18	Su S
0700	4	M T W Th F
0800	19	Su S
0915	5	M T W Th F
1100	7	M T W Th F
1100	20	Su S
1330	8	M T W Th F
1530	11	M T W Th F
1600	21	Su S
1930	13	M T W Th F
2030	15	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0900	TOD OUTPUTS	--------	Su S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-------	SuM T W ThF S
0700	TOD OUTPUTS	--------	M T W ThF
0900	TOD OUTPUTS	--------	Su S
2000	TOD OUTPUTS	8-------	SuM T W ThF

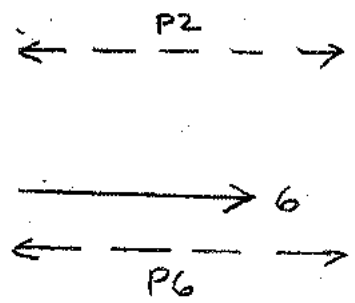
*** Settings**

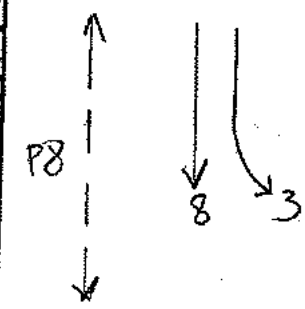
Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

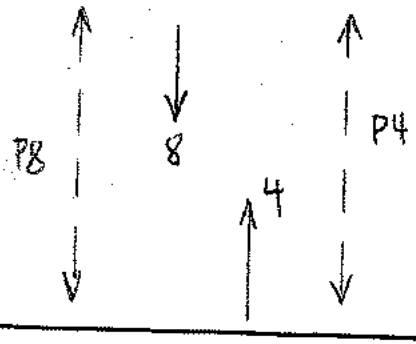
No Calendar Defined/Enabled

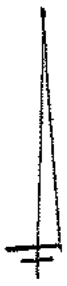
SIGNAL OPERATING PLAN

PHASE		SIGNAL HEAD NUMBER									
	INT	3	4	6	8	P2	P4	P6	P8
ϕ6 EB SW 8 ST (RECALL)	R/W	R	R	G	R	W	DW	W	DW
	PED. CL.	R	R	G	R	FD_W	DW	FD_W	DW
	CLEAR TO 3+8	R	R	Y	R	DW	DW	DW	DW
ϕ(3+8) SB SW 8 AV (RECALL)	R/W	G/←	R	R	G	DW	DW	DW	W
	PED. CL.	G/←	R	R	G	DW	DW	DW	FD_W
	CLEAR TO 4+8	G/→	R	R	G	DW	DW	DW	DW
ϕ(4+8) N/S SW AV (RECALL)	R/W	G	G	R	G	DW	W	DW	W
	PED. CL.	G	G	R	G	DW	FD_W	DW	FD_W
	CLEAR TO 6	Y	Y	R	Y	DW	DW	DW	DW
	R/W								
	PED. CL.								
	CLEAR TO								
FLASH. OPER →		R	R	Y	R				









Drawn H. HERNANDEZ	Date 1/13/94	METROPOLITAN DADE COUNTY DEPARTMENT OF TRAFFIC AND TRANSPORTATION
Check	Date 1/13/94	ASSET NO. 2247
Division Engineer	Date	SW 8 AV & 8 ST
Placed In Service Date: 1/13/94 - MARCH 1994 By:		Phasing Number 4

Appendix D: LOS Analysis – Existing Conditions

- HCS 2015 (Freeway Segments)
- Synchro 2015 (Intersections)

HCS 2015 (Freeway Segments)

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3164	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	815	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1647	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1647	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	27.5	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	25th Rd Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4857	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1252	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1686	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1686	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.9	mi/h
Number of lanes, N	3	
Density, D	28.2	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4622	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1191	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1604	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1604	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	26.7	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4791	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1235	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1663	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1663	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.9	mi/h
Number of lanes, N	3	
Density, D	27.8	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5495	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1416	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1430	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1430	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	23.8	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4099	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1056	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1067	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1067	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	17.8	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2113	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	545	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	733	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	733	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	12.2	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3219	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	830	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1117	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1117	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	8th St Ent/25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3420	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	881	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1187	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1187	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.8	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1789	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	461	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	931	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	931	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	15.5	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1782	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	459	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	928	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	928	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	15.5	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	25th Rd Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2804	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	723	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	973	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	973	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	16.2	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2538	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	654	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	881	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	881	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.7	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3232	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	833	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1122	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1122	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.7	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4845	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	1249	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1261	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1261	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	21.0	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3357	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	865	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	874	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	874	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	14.6	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1618	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	417	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	562	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	562	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	9.4	pc/mi/ln
Level of service, LOS	A	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3145	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	811	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1092	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1092	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	18.2	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	8th St Ent/25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3311	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	853	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1149	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1149	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1642	veh/h
Peak-hour factor, PHF	0.97	
Peak 15-min volume, v15	423	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	855	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	855	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	14.3	pc/mi/ln
Level of service, LOS	B	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4857	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	235	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1693	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4857		235		1693		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	1252		61		436		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5057	245	1763	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10451.06 Equation 13-12 or 13-13)

P_{FD} = 0.622 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3240$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5057	6900	No
$v_{FO} = v - v_R$	4812	6900	No
v_R	245	2100	No
v_3 or v_{av34}	1817 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3240 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3240	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 32.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.320

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_O = 62.6 mph

Space mean speed for all vehicles, S = 57.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4857	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	235	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	460	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4857		235		460		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	1252		61		119		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5057	245	479	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.622 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3240$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5057	6900	No
$v_{FO} = v - v_R$	4812	6900	No
v_R	245	2100	No
v_3 or v_{av34}	1817 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 3240$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3240	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 32.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.320

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_O = 62.6 mph

Space mean speed for all vehicles, S = 57.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4622	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	460	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	235	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4622	460	235	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	1191	119	61	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4813	479	245	pcph

Estimation of V12 Merge Areas

L_{EQ} = 498.89 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2840 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5292	6900	No
v_3 or v_{av34}	1973 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes

If yes, v_{12A} = 2840 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3319	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.402	
Space mean speed in ramp influence area,	S_R = 52.8	mph
Space mean speed in outer lanes,	S_0 = 54.7	mph
Space mean speed for all vehicles,	S = 53.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4622	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	460	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1116	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4622	460	1116	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	1191	119	288	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4813	479	1162	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2840 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		5292	6900	No
v_3 or v_{av34}		1973 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		No	

If yes, v_{12A} = 2840 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3319	4600	No

Level of Service Determination (if not F)

$D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.402
Space mean speed in ramp influence area,	S_R = 52.8 mph
Space mean speed in outer lanes,	S_0 = 54.7 mph
Space mean speed for all vehicles,	S = 53.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5495	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1396	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1986	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5495		1396		1986		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	1416		360		512		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5722	1454	2068	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3315 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5722	9200	No
$v_{FO} = v - v_{FR}$	4268	9200	No
v_R	1454	2100	No
v_3 or v_{av34}	1203 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3315 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3315	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 32.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.429

Space mean speed in ramp influence area, S_R = 52.3 mph

Space mean speed in outer lanes, S_0 = 65.0 mph

Space mean speed for all vehicles, S = 57.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2113	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	122	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1986	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2113	122	1986	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	545	31	512	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2200	127	2068	pcph

Estimation of V12 Merge Areas

L_{EQ} = 604.78 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1292 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2327	6900	No
v_3 or v_{av34}		908 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1292 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1419	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.306	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 58.5	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2113	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	122	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	984	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2113	122	984	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	545	31	254	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2200	127	1025	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1292 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2327	6900	No
v_3 or v_{av34}		908 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1292 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1419	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.306	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 58.5	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2235	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	984	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	122	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2235	984	122	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	576	254	31	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2327	1025	127	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1393 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3352	6900	No
v_3 or v_{av34}		934 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1393 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2585	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.305
Space mean speed in ramp influence area,	S_R = 54.5 mph
Space mean speed in outer lanes,	S_0 = 59.0 mph
Space mean speed for all vehicles,	S = 55.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2235	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	984	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	201	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2235	984	201	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	576	254	52	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2327	1025	209	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1393 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3352	6900	No
v_3 or v_{av34}	934 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1393 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2585	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.305

Space mean speed in ramp influence area, S_R = 54.5 mph

Space mean speed in outer lanes, S_0 = 59.0 mph

Space mean speed for all vehicles, S = 55.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3219	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1631	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3219	201	1631	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	830	52	420	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3352	209	1698	pcph

Estimation of V12 Merge Areas

L_{EQ} = 7470.30 (Equation 13-6 or 13-7)

P_{FM} = 0.684 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2293 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3561	6900	No
v_3 or v_{av34}	1059 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /12	Yes	

If yes, v_{12A} = 2293 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2502	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.270	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_0 = 58.0	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3219	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	201	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	984	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3219	201	984	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	830	52	254	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3352	209	1025	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1201.85 (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2039 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3561	6900	No
v_3 or v_{av34}	1313 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes

If yes, v_{12A} = 2039 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2248	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 16.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.259	
Space mean speed in ramp influence area,	S_R = 55.3	mph
Space mean speed in outer lanes,	S_0 = 57.1	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2804	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	266	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	451	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2804		266		451		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	723		69		116		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	2920		277		470		pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.674 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2059$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2920	6900	No
$v_{FO} = v - v_R$	2643	6900	No
v_R	277	2100	No
v_3 or v_{av34}	861 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2059 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2059	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.323

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2804	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	266	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1022	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2804		266		1022		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	723		69		263		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	2920		277		1064		pcph

Estimation of V12 Diverge Areas

L_{EQ} = 9085.63 (Equation 13-12 or 13-13)

P_{FD} = 0.674 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2059$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2920	6900	No
$v_{FO} = v - v_R$	2643	6900	No
v_R	277	2100	No
v_3 or v_{av34}	861 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2059 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2059	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.323

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2538	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	451	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	266	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2538	451	266	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	654	116	69	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2643	470	277	pcph

Estimation of V12 Merge Areas

L_{EQ} = 32.58 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1560 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3113	6900	No
v_3 or v_{av34}	1083 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 1560 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2030	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 18.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 54.2	mph
Space mean speed in outer lanes,	S_0 = 57.9	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2538	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	451	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	867	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2538	451	867	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	654	116	223	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2643	470	903	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1560 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3113	6900	No
v_3 or v_{av34}		1083 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1560 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2030	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 54.2	mph
Space mean speed in outer lanes,	S_0 = 57.9	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4845	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1488	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1739	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4845		1488		1739		vph
Peak-hour factor, PHF	0.97		0.97		0.97		
Peak 15-min volume, v15	1249		384		448		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5045	1549	1811	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3073$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5045	9200	No
$v_{FO} = v - v_F - v_R$	3496	9200	No
v_R	1549	2100	No
v_3 or v_{av34}	986 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3073 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3073	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 30.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.437

Space mean speed in ramp influence area, S_R = 52.1 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 56.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1618	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1739	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1618	375	1739	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	417	97	448	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1685	390	1811	pcph

Estimation of V12 Merge Areas

L_{EQ} = 550.85 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 990 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2075	6900	No
v_3 or v_{av34}		695 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	12	Yes	

If yes, v_{12A} = 990 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1380	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.305
Space mean speed in ramp influence area,	S_R = 54.5 mph
Space mean speed in outer lanes,	S_0 = 59.3 mph
Space mean speed for all vehicles,	S = 56.0 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1618	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1152	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1618	375	1152	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	417	97	297	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1685	390	1200	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 990 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2075	6900	No
v_3 or v_{av34}		695 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	12	Yes	

If yes, v_{12A} = 990 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1380	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.305	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 59.3	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1993	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1152	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	375	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1993	1152	375	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	514	297	97	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2075	1200	390	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1242 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3275	6900	No
v_3 or v_{av34}		833 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1242 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2591	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S	= 0.306
Space mean speed in ramp influence area, S_R	= 54.5 mph
Space mean speed in outer lanes, S_0	= 59.3 mph
Space mean speed for all vehicles, S	= 55.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2015

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1993	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1152	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	166	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1993	1152	166	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	514	297	43	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2075	1200	173	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1242 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3275	6900	No
v_3 or v_{av34}		833 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1242 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2591	4600	No

Level of Service Determination (if not F)

$D = 5.475 + 0.00734\, v_R + 0.0078\, v_R - 0.00627\, L_{12} =$ 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.306	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 59.3	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3145	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	166	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1669	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3145	166	1669	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	811	43	430	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3275	173	1738	pcph

Estimation of V12 Merge Areas

L_{EQ} = 7646.28 (Equation 13-6 or 13-7)

P_{FM} = 0.687 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2250 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3448	6900	No
v_3 or v_{av34}	1025 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2250 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2423	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.266	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_0 = 58.1	mph
Space mean speed for all vehicles,	S = 56.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2015
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3145	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	166	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1152	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3145	166	1152	vph
Peak-hour factor, PHF	0.97	0.97	0.97	
Peak 15-min volume, v15	811	43	297	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3275	173	1200	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.608$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 1992$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3448	6900	No
v_3 or v_{av34}	1283 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, $v_{12A} = 1992$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2165	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A = 15.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$M_S = 0.256$
Space mean speed in ramp influence area,	$S_R = 55.4$ mph
Space mean speed in outer lanes,	$S_0 = 57.2$ mph
Space mean speed for all vehicles,	$S = 56.0$ mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Existing 2015 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3164	60	2	2.0%	0.97	1.5	0.985	1.00	3312	4600	No	0.72
Merging[2]	1693	45	2	2.0%	0.97	1.5	0.985	1.00	1772	4200	No	0.42
Downstream[1]	4857	60	3	2.0%	0.97	1.5	0.985	1.00	5084	6900	No	0.74

Existing 2015 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	1782	60	2	2.0%	0.97	1.5	0.985	1.00	1866	4600	No	0.41
Merging[2]	1022	45	2	2.0%	0.97	1.5	0.985	1.00	1070	4200	No	0.25
Downstream[1]	2804	60	3	2.0%	0.97	1.5	0.985	1.00	2935	6900	No	0.43

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Existing 2015 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4791	60	3	2.0%	0.97	1.5	0.985	1.00	5015	6900	No	0.73
Merging[2]	420	45	2	2.0%	0.97	1.5	0.985	1.00	440	4200	No	0.10
Downstream[1]	5211	60	5	2.0%	0.97	1.5	0.985	1.00	5454	11500	No	0.47

Existing 2015 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3232	60	3	2.0%	0.97	1.5	0.985	1.00	3383	6900	No	0.49
Merging[2]	2500	45	2	2.0%	0.97	1.5	0.985	1.00	2617	4200	No	0.62
Downstream[1]	5732	60	5	2.0%	0.97	1.5	0.985	1.00	6000	11500	No	0.52

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to EB 970

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Existing 2015 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4099	60	4	2.0%	0.97	1.5	0.985	1.00	4291	9200	No	0.47
Diverging[2]	1986	45	2	2.0%	0.97	1.5	0.985	1.00	2079	4200	No	0.50
Downstream[1]	2113	60	3	2.0%	0.97	1.5	0.985	1.00	2212	6900	No	0.32

Existing 2015 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3357	60	4	2.0%	0.97	1.5	0.985	1.00	3514	9200	No	0.38
Diverging[2]	1739	45	2	2.0%	0.97	1.5	0.985	1.00	1821	4200	No	0.43
Downstream[1]	1618	60	3	2.0%	0.97	1.5	0.985	1.00	1694	6900	No	0.25

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Existing 2015 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3420	60	3	2.0%	0.97	1.5	0.985	1.00	3580	6900	No	0.52
Diverging[2]	1631	45	2	2.0%	0.97	1.5	0.985	1.00	1708	4200	No	0.41
Downstream[1]	1789	60	2	2.0%	0.97	1.5	0.985	1.00	1873	4600	No	0.41

Existing 2015 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3311	60	3	2.0%	0.97	1.5	0.985	1.00	3466	6900	No	0.50
Diverging[2]	1669	45	2	2.0%	0.97	1.5	0.985	1.00	1747	4200	No	0.42
Downstream[1]	1642	60	2	2.0%	0.97	1.5	0.985	1.00	1719	4600	No	0.37

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2015
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3703	1088	538	28	veh/h
Peak hour factor, PHF	0.97	0.97	0.97	0.97	
Peak 15-min volume, v15	954	280	139	7	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3856	1133	560	29	pc/h

Volume ratio, VR 0.005

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	87	lc/h
Weaving lane changes, LCW	522	lc/h
Non-weaving vehicle index, INW	977	
Non-weaving lane change, LCNW	1565	lc/h
Total lane changes, LCALL	2087	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.217	
Average weaving speed, SW	52.0	mi/h
Average non-weaving speed, SNW	52.7	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	52.7	mi/h
Weaving segment density, D	26.5	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.688	
Weaving segment flow rate, v	5523	veh/h
Weaving segment capacity, cW	8024	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5776	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2026	c
		Maximum	Analyzed	
v/c ratio		1.00	0.688	d

Notes:
a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2015
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	4283	1074	799	42	veh/h
Peak hour factor, PHF	0.97	0.97	0.97	0.97	
Peak 15-min volume, v15	1104	277	206	11	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4460	1118	832	44	pc/h

Volume ratio, VR 0.007

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	132	lc/h
Weaving lane changes, LCW	468	lc/h
Non-weaving vehicle index, INW	745	
Non-weaving lane change, LCNW	1309	lc/h
Total lane changes, LCALL	1777	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.273	
Average weaving speed, SW	50.4	mi/h
Average non-weaving speed, SNW	51.3	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	51.3	mi/h
Weaving segment density, D	31.5	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.822	
Weaving segment flow rate, v	6390	veh/h
Weaving segment capacity, cW	7778	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5791	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1964	c
		Maximum	Analyzed	
v/c ratio		1.00	0.822	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2015
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	2796	857	193	10	veh/h
Peak hour factor, PHF	0.97	0.97	0.97	0.97	
Peak 15-min volume, v15	721	221	50	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2911	892	201	10	pc/h

Volume ratio, VR 0.002

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	30	lc/h
Weaving lane changes, LCW	366	lc/h
Non-weaving vehicle index, INW	465	
Non-weaving lane change, LCNW	813	lc/h
Total lane changes, LCALL	1179	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.197	
Average weaving speed, SW	52.6	mi/h
Average non-weaving speed, SNW	55.0	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	55.0	mi/h
Weaving segment density, D	18.3	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.510	
Weaving segment flow rate, v	3976	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5751	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.510	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2015
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	2386	846	400	21	veh/h
Peak hour factor, PHF	0.97	0.97	0.97	0.97	
Peak 15-min volume, v15	615	218	103	5	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2484	881	416	22	pc/h

Volume ratio, VR 0.006

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	66	lc/h
Weaving lane changes, LCW	501	lc/h
Non-weaving vehicle index, INW	665	
Non-weaving lane change, LCNW	1201	lc/h
Total lane changes, LCALL	1702	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.185	
Average weaving speed, SW	53.0	mi/h
Average non-weaving speed, SNW	55.0	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.9	mi/h
Weaving segment density, D	17.3	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.469	
Weaving segment flow rate, v	3766	veh/h
Weaving segment capacity, cW	8024	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5781	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2026	c
		Maximum	Analyzed	
v/c ratio		1.00	0.469	d

Notes:
a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

Synchro 2015 (Intersections)

HCM 2010 Signalized Intersection Summary
910: SW 8 AVE & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	1190	47	0	0	0	0	154	45	135	134	0
Future Volume (veh/h)	232	1190	47	0	0	0	0	154	45	135	134	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	244	1253	49				0	162	47	142	141	0
Adj No. of Lanes	0	3	0				0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	349	1927	77				0	611	177	55	38	0
Arrive On Green	0.15	0.15	0.15				0.00	0.44	0.44	0.73	0.73	0.00
Sat Flow, veh/h	794	4380	175				0	1389	403	2	86	0
Grp Volume(v), veh/h	560	474	512				0	0	209	283	0	0
Grp Sat Flow(s),veh/h/ln	1823	1695	1832				0	0	1792	88	0	0
Q Serve(g_s), s	29.2	26.3	26.3				0.0	0.0	7.4	8.3	0.0	0.0
Cycle Q Clear(g_c), s	29.2	26.3	26.3				0.0	0.0	7.4	8.3	0.0	0.0
Prop In Lane	0.44		0.10				0.00		0.22	0.50		0.00
Lane Grp Cap(c), veh/h	802	746	806				0	0	788	0	0	0
V/C Ratio(X)	0.70	0.64	0.64				0.00	0.00	0.27	0.00	0.00	0.00
Avail Cap(c_a), veh/h	802	746	806				0	0	788	0	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.67	1.67	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	36.4	35.2	35.2				0.0	0.0	17.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	5.0	4.1	3.8				0.0	0.0	0.8	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	13.2	14.2				0.0	0.0	3.8	0.0	0.0	0.0
LnGrp Delay(d),s/veh	41.4	39.3	39.0				0.0	0.0	18.6	0.0	0.0	0.0
LnGrp LOS	D	D	D						B			
Approach Vol, veh/h		1546						209			283	
Approach Delay, s/veh		40.0						18.6			0.0	
Approach LOS		D						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				50.0		50.0		50.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				21.0		44.0		44.0
Max Q Clear Time (g_c+I1), s				9.4		31.2		10.3
Green Ext Time (p_c), s				1.3		4.7		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	32.2
HCM 2010 LOS	C

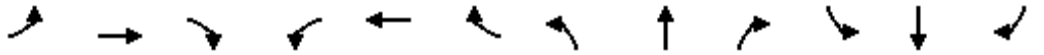
HCM 2010 Signalized Intersection Summary
911: SW 5th Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	1284	7	0	0	0	0	73	449	0	0	0
Future Volume (veh/h)	79	1284	7	0	0	0	0	73	449	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	87	1411	8				0	80	493			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	178	2684	15				0	75	464			
Arrive On Green	0.57	0.57	0.57				0.00	0.33	0.33			
Sat Flow, veh/h	252	4736	27				0	226	1391			
Grp Volume(v), veh/h	537	462	507				0	0	573			
Grp Sat Flow(s),veh/h/ln	1782	1543	1690				0	0	1617			
Q Serve(g_s), s	13.8	22.3	22.3				0.0	0.0	40.0			
Cycle Q Clear(g_c), s	22.0	22.3	22.3				0.0	0.0	40.0			
Prop In Lane	0.16		0.02				0.00		0.86			
Lane Grp Cap(c), veh/h	1045	874	958				0	0	539			
V/C Ratio(X)	0.51	0.53	0.53				0.00	0.00	1.06			
Avail Cap(c_a), veh/h	1045	874	958				0	0	539			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	16.0	16.1	16.1				0.0	0.0	40.0			
Incr Delay (d2), s/veh	1.8	2.3	2.1				0.0	0.0	56.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	11.4	9.9	10.8				0.0	0.0	26.3			
LnGrp Delay(d),s/veh	17.8	18.4	18.2				0.0	0.0	96.6			
LnGrp LOS	B	B	B						F			
Approach Vol, veh/h		1506						573				
Approach Delay, s/veh		18.1						96.6				
Approach LOS		B						F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				46.0		74.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				40.0		68.0		
Max Q Clear Time (g_c+I1), s				42.0		24.3		
Green Ext Time (p_c), s				0.0		14.0		

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1699	34	0	0	0	0	0	0	1494	480	0
Future Volume (veh/h)	0	1699	34	0	0	0	0	0	0	1494	480	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676							1676	1676	0
Adj Flow Rate, veh/h	0	1953	39							1717	552	0
Adj No. of Lanes	0	3	1							3	1	0
Peak Hour Factor	0.87	0.87	0.87							0.87	0.87	0.87
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2052	639							2176	743	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	4728	1425							4503	1676	0
Grp Volume(v), veh/h	0	1953	39							1717	552	0
Grp Sat Flow(s),veh/h/ln	0	1526	1425							1501	1676	0
Q Serve(g_s), s	0.0	50.8	2.8							44.7	37.8	0.0
Cycle Q Clear(g_c), s	0.0	50.8	2.8							44.7	37.8	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	2052	639							2176	743	0
V/C Ratio(X)	0.00	0.95	0.06							0.79	0.74	0.00
Avail Cap(c_a), veh/h	0	2052	639							2544	880	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.84	0.84							0.33	0.33	0.00
Uniform Delay (d), s/veh	0.0	49.8	29.4							47.6	44.7	0.0
Incr Delay (d2), s/veh	0.0	10.0	0.2							0.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	23.4	1.1							18.7	17.8	0.0
LnGrp Delay(d),s/veh	0.0	59.8	29.6							48.0	45.4	0.0
LnGrp LOS		E	C							D	D	
Approach Vol, veh/h		1992									2269	
Approach Delay, s/veh		59.2									47.4	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						60.8		59.2
Change Period (Y+Rc), s						7.0		6.0
Max Green Setting (Gmax), s						44.0		63.0
Max Q Clear Time (g_c+I1), s						52.8		46.7
Green Ext Time (p_c), s						0.0		6.5

Intersection Summary	
HCM 2010 Ctrl Delay	52.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1902	155	0	0	0	0	242	309	9	336	0
Future Volume (veh/h)	32	1902	155	0	0	0	0	242	309	9	336	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	34	2023	0				0	257	329	10	357	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.94	0.94	0.94				0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	41	2606	0				0	569	484	224	569	0
Arrive On Green	0.56	0.56	0.00				0.00	0.34	0.34	0.11	0.11	0.00
Sat Flow, veh/h	74	4801	0				0	1676	1425	743	1676	0
Grp Volume(v), veh/h	774	1283	0				0	257	329	10	357	0
Grp Sat Flow(s),veh/h/ln	1673	1526	0				0	1676	1425	743	1676	0
Q Serve(g_s), s	45.4	38.3	0.0				0.0	14.3	23.8	1.5	24.4	0.0
Cycle Q Clear(g_c), s	45.4	38.3	0.0				0.0	14.3	23.8	15.8	24.4	0.0
Prop In Lane	0.04		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	937	1710	0				0	569	484	224	569	0
V/C Ratio(X)	0.83	0.75	0.00				0.00	0.45	0.68	0.04	0.63	0.00
Avail Cap(c_a), veh/h	1241	2263	0				0	569	484	224	569	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.6	20.0	0.0				0.0	30.9	34.0	48.9	46.0	0.0
Incr Delay (d2), s/veh	3.2	0.9	0.0				0.0	2.6	7.5	0.1	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.7	16.2	0.0				0.0	7.0	10.3	0.3	11.7	0.0
LnGrp Delay(d),s/veh	24.8	20.9	0.0				0.0	33.5	41.5	49.0	48.0	0.0
LnGrp LOS	C	C						C	D	D	D	
Approach Vol, veh/h		2057						586			367	
Approach Delay, s/veh		22.3						38.0			48.0	
Approach LOS		C						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				46.8		73.2		46.8
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s				25.8		47.4		26.4
Green Ext Time (p_c), s				0.0		19.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
914: SW 2nd Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	395	1689	254	0	0	0	0	917	83	132	221	0
Future Volume (veh/h)	395	1689	254	0	0	0	0	917	83	132	221	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1660	1710				0	1660	1710	1710	1660	0
Adj Flow Rate, veh/h	434	1856	279				0	1008	91	145	243	0
Adj No. of Lanes	0	3	0				0	2	0	0	2	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	3	0				0	3	3	3	3	0
Cap, veh/h	400	1831	277				0	1073	97	61	526	0
Arrive On Green	0.18	0.18	0.18				0.00	0.37	0.37	0.12	0.12	0.00
Sat Flow, veh/h	749	3434	519				0	3010	264	4	1511	0
Grp Volume(v), veh/h	940	786	843				0	543	556	145	243	0
Grp Sat Flow(s),veh/h/ln	1623	1511	1569				0	1577	1614	4	1436	0
Q Serve(g_s), s	64.0	62.1	64.0				0.0	39.9	39.9	32.5	18.9	0.0
Cycle Q Clear(g_c), s	64.0	62.1	64.0				0.0	39.9	39.9	32.5	18.9	0.0
Prop In Lane	0.46		0.33				0.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	865	806	837				0	578	592	0	526	0
V/C Ratio(X)	1.09	0.98	1.01				0.00	0.94	0.94	0.00	0.46	0.00
Avail Cap(c_a), veh/h	865	806	837				0	578	592	0	526	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.59	0.59	0.59				0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	49.4	48.7	49.4				0.0	36.7	36.7	0.0	41.7	0.0
Incr Delay (d2), s/veh	50.6	19.1	25.7				0.0	25.1	24.8	0.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.9	30.3	33.8				0.0	21.4	21.8	0.0	7.6	0.0
LnGrp Delay(d),s/veh	100.0	67.8	75.2				0.0	61.8	61.5	0.0	42.0	0.0
LnGrp LOS	F	E	F					E	E		D	
Approach Vol, veh/h		2569						1099			388	
Approach Delay, s/veh		82.0						61.6			26.3	
Approach LOS		F						E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				50.0		70.0		50.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				29.0		64.0		44.0
Max Q Clear Time (g_c+I1), s				41.9		66.0		34.5
Green Ext Time (p_c), s				0.0		0.0		3.6

Intersection Summary	
HCM 2010 Ctrl Delay	71.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1590	504	0	0	0	0	0	0	212	474	0
Future Volume (veh/h)	0	1590	504	0	0	0	0	0	0	212	474	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1656	525							221	494	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.96	0.96	0.96							0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2374	734							221	416	0
Arrive On Green	0.00	0.23	0.23							0.07	0.07	0.00
Sat Flow, veh/h	0	3582	1062							831	2075	0
Grp Volume(v), veh/h	0	1453	728							371	344	0
Grp Sat Flow(s),veh/h/ln	0	1511	1473							1395	1435	0
Q Serve(g_s), s	0.0	52.9	54.7							25.0	25.0	0.0
Cycle Q Clear(g_c), s	0.0	52.9	54.7							25.0	25.0	0.0
Prop In Lane	0.00		0.72							0.60		0.00
Lane Grp Cap(c), veh/h	0	2090	1019							338	299	0
V/C Ratio(X)	0.00	0.70	0.71							1.10	1.15	0.00
Avail Cap(c_a), veh/h	0	2090	1019							338	299	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.09	0.09							0.51	0.51	0.00
Uniform Delay (d), s/veh	0.0	34.7	35.4							57.6	55.9	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.4							64.2	86.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.2	22.5							17.3	17.1	0.0
LnGrp Delay(d),s/veh	0.0	34.9	35.8							121.9	142.2	0.0
LnGrp LOS		C	D							F	F	
Approach Vol, veh/h		2181									715	
Approach Delay, s/veh		35.2									131.6	
Approach LOS		D									F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						89.0		31.0
Change Period (Y+Rc), s						6.0		6.0
Max Green Setting (Gmax), s						83.0		25.0
Max Q Clear Time (g_c+I1), s						56.7		27.0
Green Ext Time (p_c), s						19.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	59.0
HCM 2010 LOS	E

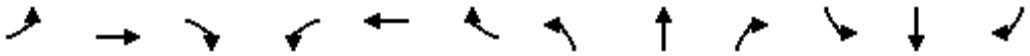
HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	1676	0	0	0	0	0	611	71	0	0	0
Future Volume (veh/h)	236	1676	0	0	0	0	0	611	71	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	246	1746	0				0	636	74			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	402	2618	0				0	816	94			
Arrive On Green	0.23	0.23	0.00				0.00	0.20	0.20			
Sat Flow, veh/h	515	3866	0				0	4272	475			
Grp Volume(v), veh/h	714	1278	0				0	464	246			
Grp Sat Flow(s),veh/h/ln	1496	1375	0				0	1511	1576			
Q Serve(g_s), s	52.2	50.6	0.0				0.0	17.5	17.8			
Cycle Q Clear(g_c), s	52.2	50.6	0.0				0.0	17.5	17.8			
Prop In Lane	0.34		0.00				0.00		0.30			
Lane Grp Cap(c), veh/h	1090	1930	0				0	598	312			
V/C Ratio(X)	0.65	0.66	0.00				0.00	0.78	0.79			
Avail Cap(c_a), veh/h	1090	1930	0				0	856	447			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	33.8	33.2	0.0				0.0	45.6	45.7			
Incr Delay (d2), s/veh	1.9	1.1	0.0				0.0	2.9	5.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	22.2	19.6	0.0				0.0	7.5	8.2			
LnGrp Delay(d),s/veh	35.7	34.3	0.0				0.0	48.5	51.6			
LnGrp LOS	D	C						D	D			
Approach Vol, veh/h		1992						710				
Approach Delay, s/veh		34.8						49.6				
Approach LOS		C						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				29.8		90.2		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				34.0		74.0		
Max Q Clear Time (g_c+I1), s				19.8		54.2		
Green Ext Time (p_c), s				4.0		14.1		

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

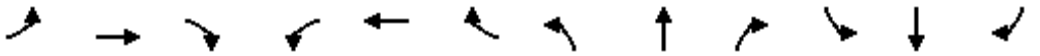
HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	675	76	290	543	0	0	0	0
Future Volume (vph)	0	0	0	0	675	76	290	543	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4464		1435	3014				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4464		1435	3014				
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	0	696	78	299	560	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	84	20	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	767	0	185	570	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					76.4		31.6	31.6				
Effective Green, g (s)					76.4		31.6	31.6				
Actuated g/C Ratio					0.64		0.26	0.26				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					3.0		3.0	3.0				
Lane Grp Cap (vph)					2842		377	793				
v/s Ratio Prot					c0.17							
v/s Ratio Perm							0.13	0.19				
v/c Ratio					0.27		0.49	0.72				
Uniform Delay, d1					9.6		37.4	40.2				
Progression Factor					1.00		0.36	0.60				
Incremental Delay, d2					0.2		0.8	2.6				
Delay (s)					9.8		14.2	26.7				
Level of Service					A		B	C				
Approach Delay (s)		0.0			9.8			22.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	129	801	0	0	0	0	0	625	311
Future Volume (vph)	0	0	0	129	801	0	0	0	0	0	625	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4501						3000	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4501						3000	1284
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	134	834	0	0	0	0	0	651	324
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	3	116
Lane Group Flow (vph)	0	0	0	0	951	0	0	0	0	0	680	176
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					73.6						34.4	34.4
Effective Green, g (s)					73.6						34.4	34.4
Actuated g/C Ratio					0.61						0.29	0.29
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					3.0						3.0	3.0
Lane Grp Cap (vph)					2760						860	368
v/s Ratio Prot											c0.23	
v/s Ratio Perm					0.21							0.14
v/c Ratio					0.34						0.79	0.48
Uniform Delay, d1					11.4						39.5	35.4
Progression Factor					1.07						1.00	1.00
Incremental Delay, d2					0.3						5.0	1.0
Delay (s)					12.5						44.5	36.4
Level of Service					B						D	D
Approach Delay (s)		0.0			12.5			0.0			42.1	
Approach LOS		A			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	69	911	221	264	1048	0	0	579	163
Future Volume (veh/h)	0	0	0	69	911	221	264	1048	0	0	579	163
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				78	1024	248	297	1178	0	0	651	183
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				114	1585	399	322	1419	0	0	611	172
Arrive On Green				0.15	0.15	0.15	0.22	0.60	0.00	0.00	0.25	0.25
Sat Flow, veh/h				254	3522	886	1581	3237	0	0	2516	683
Grp Volume(v), veh/h				506	423	421	297	1178	0	0	422	412
Grp Sat Flow(s),veh/h/ln				1648	1511	1504	1581	1577	0	0	1577	1540
Q Serve(g_s), s				35.0	31.5	31.5	17.4	35.7	0.0	0.0	30.1	30.1
Cycle Q Clear(g_c), s				35.0	31.5	31.5	17.4	35.7	0.0	0.0	30.1	30.1
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				741	680	677	322	1419	0	0	396	387
V/C Ratio(X)				0.68	0.62	0.62	0.92	0.83	0.00	0.00	1.06	1.07
Avail Cap(c_a), veh/h				741	680	677	403	1419	0	0	396	387
HCM Platoon Ratio				0.33	0.33	0.33	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.92	0.92	0.92	0.19	0.19	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.0	41.5	41.5	30.3	20.4	0.0	0.0	44.9	44.9
Incr Delay (d2), s/veh				4.7	3.9	3.9	6.3	1.1	0.0	0.0	63.5	64.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.9	13.9	13.9	10.1	15.5	0.0	0.0	20.1	19.7
LnGrp Delay(d),s/veh				47.6	45.4	45.4	36.6	21.6	0.0	0.0	108.4	109.4
LnGrp LOS				D	D	D	D	C			F	F
Approach Vol, veh/h					1350			1475			834	
Approach Delay, s/veh					46.3			24.6			108.9	
Approach LOS					D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		60.0		60.0			23.9	36.1
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		54.0		54.0			26.0	24.0
Max Q Clear Time (g_c+I1), s		37.0		37.7			19.4	32.1
Green Ext Time (p_c), s		8.4		11.9			0.5	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.8
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	345	916	77	176	98	0	0	0	0
Future Volume (veh/h)	0	0	0	345	916	77	176	98	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				359	954	80	183	102	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				712	1829	154	482	443	0			
Arrive On Green				0.21	0.21	0.21	0.09	0.09	0.00			
Sat Flow, veh/h				1040	2887	243	1581	1660	0			
Grp Volume(v), veh/h				458	452	483	183	102	0			
Grp Sat Flow(s),veh/h/ln				1328	1375	1468	1581	1660	0			
Q Serve(g_s), s				37.0	35.0	35.0	13.2	6.9	0.0			
Cycle Q Clear(g_c), s				37.0	35.0	35.0	13.2	6.9	0.0			
Prop In Lane				0.78		0.17	1.00		0.00			
Lane Grp Cap(c), veh/h				895	871	930	482	443	0			
V/C Ratio(X)				0.51	0.52	0.52	0.38	0.23	0.00			
Avail Cap(c_a), veh/h				895	871	930	482	443	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.63	0.63	0.63	0.49	0.49	0.00			
Uniform Delay (d), s/veh				32.0	31.2	31.2	46.1	43.3	0.0			
Incr Delay (d2), s/veh				1.3	1.4	1.3	1.1	0.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				13.9	13.7	14.6	5.9	3.2	0.0			
LnGrp Delay(d),s/veh				33.4	32.6	32.6	47.2	43.8	0.0			
LnGrp LOS				C	C	C	D	D				
Approach Vol, veh/h					1393			285				
Approach Delay, s/veh					32.8			46.0				
Approach LOS					C			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		82.0		38.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		76.0		32.0				
Max Q Clear Time (g_c+I1), s		39.0		15.2				
Green Ext Time (p_c), s		12.0		0.9				

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	533	393	224	12	1217	428
Future Volume (vph)	533	393	224	12	1217	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.99	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1449	2996	3161		3087	1297
Flt Permitted	0.95	0.98	1.00		0.95	1.00
Satd. Flow (perm)	1449	2996	3161		3087	1297
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	567	418	238	13	1295	455
RTOR Reduction (vph)	73	73	4	0	0	0
Lane Group Flow (vph)	250	589	247	0	1341	409
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	9		8	
Permitted Phases	2					8
Actuated Green, G (s)	32.7	32.7	11.8		54.5	54.5
Effective Green, g (s)	32.7	32.7	11.8		54.5	54.5
Actuated g/C Ratio	0.27	0.27	0.10		0.45	0.45
Clearance Time (s)	7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	1.0	1.0	3.0		3.0	3.0
Lane Grp Cap (vph)	394	816	310		1402	589
v/s Ratio Prot			c0.08		c0.43	
v/s Ratio Perm	0.17	0.20				0.32
v/c Ratio	0.64	0.72	0.80		0.96	0.69
Uniform Delay, d1	38.4	39.5	52.9		31.6	26.1
Progression Factor	0.51	0.59	1.00		1.00	1.00
Incremental Delay, d2	6.8	4.9	13.3		14.8	3.5
Delay (s)	26.3	28.4	66.3		46.4	29.7
Level of Service	C	C	E		D	C
Approach Delay (s)		27.7	66.3		42.5	
Approach LOS		C	E		D	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	46	704	49	66	320	0	0	223	86
Future Volume (veh/h)	0	0	0	46	704	49	66	320	0	0	223	86
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				52	791	55	74	360	0	0	251	97
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				156	2530	181	99	409	0	0	471	182
Arrive On Green				0.54	0.54	0.53	0.71	0.71	0.00	0.00	0.35	0.35
Sat Flow, veh/h				292	4717	338	161	1157	0	0	1332	515
Grp Volume(v), veh/h				330	275	294	434	0	0	0	0	348
Grp Sat Flow(s),veh/h/ln				1848	1695	1803	1318	0	0	0	0	1846
Q Serve(g_s), s				10.1	9.0	9.1	16.2	0.0	0.0	0.0	0.0	15.0
Cycle Q Clear(g_c), s				10.1	9.0	9.1	31.2	0.0	0.0	0.0	0.0	15.0
Prop In Lane				0.16		0.19	0.17		0.00	0.00		0.28
Lane Grp Cap(c), veh/h				991	909	967	508	0	0	0	0	653
V/C Ratio(X)				0.33	0.30	0.30	0.85	0.00	0.00	0.00	0.00	0.53
Avail Cap(c_a), veh/h				991	909	967	650	0	0	0	0	812
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.62	0.62	0.62	0.81	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				13.1	12.8	12.9	14.9	0.0	0.0	0.0	0.0	25.7
Incr Delay (d2), s/veh				0.6	0.5	0.5	6.8	0.0	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	4.3	4.6	11.6	0.0	0.0	0.0	0.0	7.7
LnGrp Delay(d),s/veh				13.6	13.4	13.4	21.7	0.0	0.0	0.0	0.0	26.2
LnGrp LOS				B	B	B	C					C
Approach Vol, veh/h					898			434			348	
Approach Delay, s/veh					13.5			21.7			26.2	
Approach LOS					B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		58.6		41.4				41.4
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		44.0		44.0				44.0
Max Q Clear Time (g_c+I1), s		12.1		33.2				17.0
Green Ext Time (p_c), s		2.9		2.2				2.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
910: SW 8 AVE & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	1056	23	0	0	0	0	116	33	106	129	0
Future Volume (veh/h)	175	1056	23	0	0	0	0	116	33	106	129	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	177	1067	23				0	117	33	107	130	0
Adj No. of Lanes	0	3	0				0	1	0	0	1	0
Peak Hour Factor	0.99	0.99	0.99				0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	388	2509	55				0	490	138	44	39	0
Arrive On Green	0.18	0.18	0.18				0.00	0.35	0.35	0.11	0.12	0.00
Sat Flow, veh/h	705	4562	101				0	1399	394	2	110	0
Grp Volume(v), veh/h	459	387	421				0	0	150	237	0	0
Grp Sat Flow(s),veh/h/ln	1827	1695	1845				0	0	1793	112	0	0
Q Serve(g_s), s	26.9	24.3	24.3				0.0	0.0	7.1	10.9	0.0	0.0
Cycle Q Clear(g_c), s	26.9	24.3	24.3				0.0	0.0	7.1	10.9	0.0	0.0
Prop In Lane	0.39		0.05				0.00		0.22	0.45		0.00
Lane Grp Cap(c), veh/h	1005	932	1015				0	0	628	0	0	0
V/C Ratio(X)	0.46	0.42	0.42				0.00	0.00	0.24	0.00	0.00	0.00
Avail Cap(c_a), veh/h	1005	932	1015				0	0	628	0	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	33.1	32.0	32.0				0.0	0.0	27.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.5	1.4	1.3				0.0	0.0	0.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	11.8	12.8				0.0	0.0	3.7	0.0	0.0	0.0
LnGrp Delay(d),s/veh	34.6	33.4	33.3				0.0	0.0	28.6	0.0	0.0	0.0
LnGrp LOS	C	C	C						C			
Approach Vol, veh/h		1267						150			237	
Approach Delay, s/veh		33.8						28.6			0.0	
Approach LOS		C						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				48.0		72.0		48.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				22.0		66.0		42.0
Max Q Clear Time (g_c+I1), s				9.1		28.9		12.9
Green Ext Time (p_c), s				1.0		4.6		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

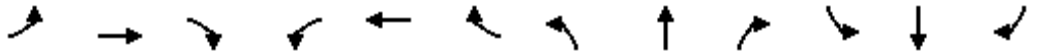
HCM 2010 Signalized Intersection Summary
911: SW 5th Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	978	36	0	0	0	0	137	278	0	0	0
Future Volume (veh/h)	181	978	36	0	0	0	0	137	278	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	189	1019	38				0	143	290			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	473	2384	89				0	169	343			
Arrive On Green	0.60	0.60	0.60				0.00	0.31	0.31			
Sat Flow, veh/h	721	3974	149				0	550	1116			
Grp Volume(v), veh/h	426	394	426				0	0	433			
Grp Sat Flow(s),veh/h/ln	1632	1543	1669				0	0	1666			
Q Serve(g_s), s	17.9	17.8	17.8				0.0	0.0	31.6			
Cycle Q Clear(g_c), s	18.3	17.8	17.8				0.0	0.0	31.6			
Prop In Lane	0.44		0.09				0.00		0.67			
Lane Grp Cap(c), veh/h	1019	926	1001				0	0	513			
V/C Ratio(X)	0.42	0.43	0.43				0.00	0.00	0.84			
Avail Cap(c_a), veh/h	1019	926	1001				0	0	513			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	14.0	14.0	14.0				0.0	0.0	42.1			
Incr Delay (d2), s/veh	1.3	1.4	1.3				0.0	0.0	15.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.5	7.9	8.5				0.0	0.0	16.8			
LnGrp Delay(d),s/veh	15.3	15.4	15.3				0.0	0.0	57.7			
LnGrp LOS	B	B	B						E			
Approach Vol, veh/h		1246						433				
Approach Delay, s/veh		15.3						57.7				
Approach LOS		B						E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				46.0		84.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				40.0		78.0		
Max Q Clear Time (g_c+I1), s				33.6		20.3		
Green Ext Time (p_c), s				1.5		10.8		

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1199	57	0	0	0	0	0	0	1161	483	0
Future Volume (veh/h)	0	1199	57	0	0	0	0	0	0	1161	483	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1676							1676	1676	0
Adj Flow Rate, veh/h	0	1223	58							1185	493	0
Adj No. of Lanes	0	3	1							3	1	0
Peak Hour Factor	0.98	0.98	0.98							0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	1901	592							2348	812	0
Arrive On Green	0.00	0.14	0.14							0.16	0.16	0.00
Sat Flow, veh/h	0	4728	1425							4503	1676	0
Grp Volume(v), veh/h	0	1223	58							1185	493	0
Grp Sat Flow(s),veh/h/ln	0	1526	1425							1501	1676	0
Q Serve(g_s), s	0.0	32.9	4.6							31.5	35.6	0.0
Cycle Q Clear(g_c), s	0.0	32.9	4.6							31.5	35.6	0.0
Prop In Lane	0.00		1.00							1.00		0.00
Lane Grp Cap(c), veh/h	0	1901	592							2348	812	0
V/C Ratio(X)	0.00	0.64	0.10							0.50	0.61	0.00
Avail Cap(c_a), veh/h	0	1901	592							2348	812	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	47.0	34.8							41.4	43.1	0.0
Incr Delay (d2), s/veh	0.0	1.7	0.3							0.8	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.2	1.9							13.3	17.3	0.0
LnGrp Delay(d),s/veh	0.0	48.7	35.1							42.1	46.4	0.0
LnGrp LOS		D	D							D	D	
Approach Vol, veh/h		1281									1678	
Approach Delay, s/veh		48.1									43.4	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						61.0		69.0
Change Period (Y+Rc), s						7.0		6.0
Max Green Setting (Gmax), s						54.0		63.0
Max Q Clear Time (g_c+I1), s						34.9		37.6
Green Ext Time (p_c), s						6.3		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1377	67	0	0	0	0	439	311	20	354	0
Future Volume (veh/h)	78	1377	67	0	0	0	0	439	311	20	354	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	87	1530	0				0	488	346	22	393	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	105	1959	0				0	788	670	204	788	0
Arrive On Green	0.44	0.44	0.00				0.00	0.47	0.47	0.47	0.47	0.00
Sat Flow, veh/h	239	4628	0				0	1676	1425	590	1676	0
Grp Volume(v), veh/h	606	1011	0				0	488	346	22	393	0
Grp Sat Flow(s),veh/h/ln	1665	1526	0				0	1676	1425	590	1676	0
Q Serve(g_s), s	41.9	36.2	0.0				0.0	28.3	22.1	3.8	21.1	0.0
Cycle Q Clear(g_c), s	41.9	36.2	0.0				0.0	28.3	22.1	32.1	21.1	0.0
Prop In Lane	0.14		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	729	1335	0				0	788	670	204	788	0
V/C Ratio(X)	0.83	0.76	0.00				0.00	0.62	0.52	0.11	0.50	0.00
Avail Cap(c_a), veh/h	1050	1925	0				0	788	670	204	788	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.3	30.7	0.0				0.0	25.8	24.1	37.7	23.8	0.0
Incr Delay (d2), s/veh	3.4	0.8	0.0				0.0	3.6	2.8	1.1	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.9	15.3	0.0				0.0	13.8	9.2	0.7	10.2	0.0
LnGrp Delay(d),s/veh	35.7	31.6	0.0				0.0	29.4	26.9	38.8	26.1	0.0
LnGrp LOS	D	C						C	C	D	C	
Approach Vol, veh/h		1617						834			415	
Approach Delay, s/veh		33.1						28.4			26.8	
Approach LOS		C						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				67.1		62.9		67.1
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				36.0		82.0		36.0
Max Q Clear Time (g_c+I1), s				30.3		43.9		34.1
Green Ext Time (p_c), s				3.2		13.0		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
914: SW 2nd Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	1156	384	0	0	0	0	889	84	149	359	0
Future Volume (veh/h)	323	1156	384	0	0	0	0	889	84	149	359	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1710	1710	1676	0
Adj Flow Rate, veh/h	333	1192	396				0	916	87	154	370	0
Adj No. of Lanes	0	3	0				0	2	0	0	2	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	365	1395	474				0	1108	105	56	547	0
Arrive On Green	0.16	0.16	0.16				0.00	0.38	0.38	0.75	0.75	0.00
Sat Flow, veh/h	763	2914	989				0	3024	279	3	1527	0
Grp Volume(v), veh/h	715	605	601				0	496	507	156	368	0
Grp Sat Flow(s),veh/h/ln	1638	1526	1502				0	1593	1627	4	1450	0
Q Serve(g_s), s	55.8	49.9	50.5				0.0	36.6	36.6	35.9	16.5	0.0
Cycle Q Clear(g_c), s	55.8	49.9	50.5				0.0	36.6	36.6	35.9	16.5	0.0
Prop In Lane	0.47		0.66				0.00		0.17	0.98		0.00
Lane Grp Cap(c), veh/h	784	730	719				0	600	613	0	546	0
V/C Ratio(X)	0.91	0.83	0.84				0.00	0.83	0.83	0.00	0.67	0.00
Avail Cap(c_a), veh/h	870	810	797				0	600	613	0	546	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.66	0.66	0.66				0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	52.0	49.5	49.8				0.0	36.7	36.7	0.0	12.0	0.0
Incr Delay (d2), s/veh	12.0	7.2	7.7				0.0	12.3	12.1	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.0	22.6	22.6				0.0	18.2	18.5	0.0	6.4	0.0
LnGrp Delay(d),s/veh	64.0	56.7	57.4				0.0	49.0	48.8	0.0	12.6	0.0
LnGrp LOS	E	E	E					D	D		B	
Approach Vol, veh/h		1921						1003			524	
Approach Delay, s/veh		59.7						48.9			8.8	
Approach LOS		E						D			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				55.0		68.2		55.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				29.0		69.0		49.0
Max Q Clear Time (g_c+I1), s				38.6		57.8		37.9
Green Ext Time (p_c), s				0.0		4.4		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	48.8
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1068	348	0	0	0	0	0	0	141	729	0
Future Volume (veh/h)	0	1068	348	0	0	0	0	0	0	141	729	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1148	374							152	784	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.93	0.93	0.93							0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	1927	628							196	838	0
Arrive On Green	0.00	0.19	0.19							0.11	0.11	0.00
Sat Flow, veh/h	0	3534	1102							471	2550	0
Grp Volume(v), veh/h	0	1025	497							485	451	0
Grp Sat Flow(s),veh/h/ln	0	1511	1466							1510	1435	0
Q Serve(g_s), s	0.0	40.3	40.3							41.3	40.5	0.0
Cycle Q Clear(g_c), s	0.0	40.3	40.3							41.5	40.5	0.0
Prop In Lane	0.00		0.75							0.31		0.00
Lane Grp Cap(c), veh/h	0	1720	834							547	486	0
V/C Ratio(X)	0.00	0.60	0.60							0.89	0.93	0.00
Avail Cap(c_a), veh/h	0	1720	834							547	486	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	39.1	39.1							56.6	56.2	0.0
Incr Delay (d2), s/veh	0.0	1.5	3.1							18.7	26.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.3	17.1							20.2	19.7	0.0
LnGrp Delay(d),s/veh	0.0	40.6	42.2							75.4	82.6	0.0
LnGrp LOS		D	D							E	F	
Approach Vol, veh/h		1522									936	
Approach Delay, s/veh		41.2									78.8	
Approach LOS		D									E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						80.0		50.0
Change Period (Y+Rc), s						6.0		6.0
Max Green Setting (Gmax), s						74.0		44.0
Max Q Clear Time (g_c+I1), s						42.3		43.5
Green Ext Time (p_c), s						14.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	55.5
HCM 2010 LOS	E

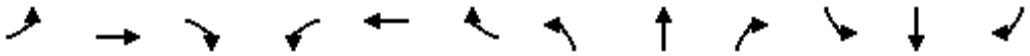
HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	293	973	0	0	0	0	0	702	52	0	0	0
Future Volume (veh/h)	293	973	0	0	0	0	0	702	52	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	302	1003	0				0	724	54			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	661	2106	0				0	875	65			
Arrive On Green	0.22	0.22	0.00				0.00	0.20	0.20			
Sat Flow, veh/h	929	3320	0				0	4455	319			
Grp Volume(v), veh/h	443	862	0				0	507	271			
Grp Sat Flow(s),veh/h/ln	1363	1375	0				0	1511	1604			
Q Serve(g_s), s	37.0	35.5	0.0				0.0	20.9	21.1			
Cycle Q Clear(g_c), s	37.0	35.5	0.0				0.0	20.9	21.1			
Prop In Lane	0.68		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	949	1819	0				0	614	326			
V/C Ratio(X)	0.47	0.47	0.00				0.00	0.83	0.83			
Avail Cap(c_a), veh/h	949	1819	0				0	744	395			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.76	0.76	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	31.7	31.1	0.0				0.0	49.6	49.7			
Incr Delay (d2), s/veh	1.3	0.7	0.0				0.0	6.4	12.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.3	13.7	0.0				0.0	9.3	10.4			
LnGrp Delay(d),s/veh	32.9	31.8	0.0				0.0	56.0	61.6			
LnGrp LOS	C	C						E	E			
Approach Vol, veh/h		1305						778				
Approach Delay, s/veh		32.2						58.0				
Approach LOS		C						E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				32.4		92.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				32.0		86.0		
Max Q Clear Time (g_c+I1), s				23.1		39.0		
Green Ext Time (p_c), s				3.4		12.4		

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

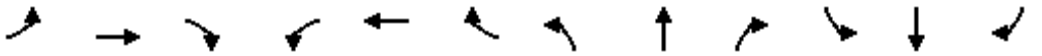
HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1034	116	432	521	0	0	0	0
Future Volume (vph)	0	0	0	0	1034	116	432	521	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	0.99				
Satd. Flow (prot)					4464		1435	2993				
Flt Permitted					1.00		0.95	0.99				
Satd. Flow (perm)					4464		1435	2993				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	1088	122	455	548	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	17	17	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1203	0	311	658	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					77.8		40.2	40.2				
Effective Green, g (s)					77.8		40.2	40.2				
Actuated g/C Ratio					0.60		0.31	0.31				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					3.0		3.0	3.0				
Lane Grp Cap (vph)					2671		443	925				
v/s Ratio Prot					c0.27							
v/s Ratio Perm							0.22	0.22				
v/c Ratio					0.45		0.70	0.71				
Uniform Delay, d1					14.3		39.6	39.8				
Progression Factor					1.00		0.47	0.47				
Incremental Delay, d2					0.6		3.9	2.1				
Delay (s)					14.9		22.4	20.8				
Level of Service					B		C	C				
Approach Delay (s)		0.0			14.9			21.3			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	208	1205	0	0	0	0	0	661	293
Future Volume (vph)	0	0	0	208	1205	0	0	0	0	0	661	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4499						3002	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4499						3002	1284
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	217	1255	0	0	0	0	0	689	305
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	2	20
Lane Group Flow (vph)	0	0	0	0	1453	0	0	0	0	0	718	254
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					64.0						54.0	54.0
Effective Green, g (s)					64.0						54.0	54.0
Actuated g/C Ratio					0.49						0.42	0.42
Clearance Time (s)					6.0						6.0	6.0
Lane Grp Cap (vph)					2214						1246	533
v/s Ratio Prot											c0.24	
v/s Ratio Perm					0.32							0.20
v/c Ratio					0.66						0.58	0.48
Uniform Delay, d1					24.8						29.2	27.7
Progression Factor					1.09						1.00	1.00
Incremental Delay, d2					1.4						1.9	3.0
Delay (s)					28.3						31.1	30.7
Level of Service					C						C	C
Approach Delay (s)		0.0			28.3			0.0			31.0	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	70	1095	194	340	872	0	0	458	337
Future Volume (veh/h)	0	0	0	70	1095	194	340	872	0	0	458	337
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				75	1177	209	366	938	0	0	492	362
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				88	1462	269	376	1642	0	0	503	370
Arrive On Green				0.13	0.13	0.13	0.40	1.00	0.00	0.00	0.29	0.29
Sat Flow, veh/h				227	3775	695	1581	3237	0	0	1820	1276
Grp Volume(v), veh/h				545	454	462	366	938	0	0	447	407
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				42.0	37.8	37.8	24.4	0.0	0.0	0.0	36.5	36.6
Cycle Q Clear(g_c), s				42.0	37.8	37.8	24.4	0.0	0.0	0.0	36.5	36.6
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				638	585	595	376	1642	0	0	457	416
V/C Ratio(X)				0.85	0.78	0.78	0.97	0.57	0.00	0.00	0.98	0.98
Avail Cap(c_a), veh/h				685	628	639	376	1642	0	0	457	416
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.73	0.73	0.73	0.52	0.52	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				53.1	51.2	51.2	25.9	0.0	0.0	0.0	45.7	45.8
Incr Delay (d2), s/veh				7.3	4.3	4.2	26.5	0.8	0.0	0.0	36.9	39.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				20.5	16.6	16.8	15.4	0.2	0.0	0.0	20.6	19.0
LnGrp Delay(d),s/veh				60.4	55.5	55.4	52.5	0.8	0.0	0.0	82.6	85.1
LnGrp LOS				E	E	E	D	A			F	F
Approach Vol, veh/h					1461			1304			854	
Approach Delay, s/veh					57.3			15.3			83.8	
Approach LOS					E			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		56.3		73.7			30.0	43.7
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		54.0		64.0			26.0	34.0
Max Q Clear Time (g_c+I1), s		44.0		2.0			26.4	38.6
Green Ext Time (p_c), s		6.3		21.4			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	48.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	374	1111	287	295	222	0	0	0	0
Future Volume (veh/h)	0	0	0	374	1111	287	295	222	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1676	1710	1676	1676	0			
Adj Flow Rate, veh/h				435	1292	334	343	258	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %				2	2	2	2	2	0			
Cap, veh/h				612	1754	454	448	413	0			
Arrive On Green				0.22	0.22	0.22	0.08	0.08	0.00			
Sat Flow, veh/h				857	2652	687	1597	1676	0			
Grp Volume(v), veh/h				712	666	683	343	258	0			
Grp Sat Flow(s),veh/h/ln				1403	1388	1404	1597	1676	0			
Q Serve(g_s), s				62.0	57.9	58.9	27.6	19.4	0.0			
Cycle Q Clear(g_c), s				62.0	57.9	58.9	27.6	19.4	0.0			
Prop In Lane				0.61		0.49	1.00		0.00			
Lane Grp Cap(c), veh/h				973	918	929	448	413	0			
V/C Ratio(X)				0.73	0.73	0.74	0.76	0.63	0.00			
Avail Cap(c_a), veh/h				973	918	929	448	413	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.42	0.42	0.42	0.58	0.58	0.00			
Uniform Delay (d), s/veh				41.4	39.8	40.2	57.7	53.9	0.0			
Incr Delay (d2), s/veh				2.1	2.1	2.2	7.1	4.1	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				24.6	22.8	23.5	13.1	9.5	0.0			
LnGrp Delay(d),s/veh				43.5	42.0	42.4	64.8	58.0	0.0			
LnGrp LOS				D	D	D	E	E				
Approach Vol, veh/h					2061			601				
Approach Delay, s/veh					42.6			61.9				
Approach LOS					D			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		92.0		38.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		86.0		32.0				
Max Q Clear Time (g_c+I1), s		64.0		29.6				
Green Ext Time (p_c), s		15.5		0.7				

Intersection Summary		
HCM 2010 Ctrl Delay		47.0
HCM 2010 LOS		D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	510	717	246	33	888	951
Future Volume (vph)	510	717	246	33	888	951
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.96	0.85
Flt Protected	0.95	0.99	1.00		0.97	1.00
Satd. Flow (prot)	1449	3031	3128		3003	1297
Flt Permitted	0.95	0.99	1.00		0.97	1.00
Satd. Flow (perm)	1449	3031	3128		3003	1297
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	567	797	273	37	987	1057
RTOR Reduction (vph)	62	62	8	0	0	0
Lane Group Flow (vph)	380	860	302	0	1399	645
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	9		8	
Permitted Phases	2					8
Actuated Green, G (s)	42.0	42.0	12.0		55.0	55.0
Effective Green, g (s)	42.0	42.0	12.0		55.0	55.0
Actuated g/C Ratio	0.32	0.32	0.09		0.42	0.42
Clearance Time (s)	7.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	1.0	1.0	3.0		3.0	3.0
Lane Grp Cap (vph)	468	979	288		1270	548
v/s Ratio Prot			c0.10		0.47	
v/s Ratio Perm	0.26	0.28				c0.50
v/c Ratio	0.81	0.88	1.05		1.10	1.18
Uniform Delay, d1	40.4	41.6	59.0		37.5	37.5
Progression Factor	1.27	1.22	1.00		1.00	1.00
Incremental Delay, d2	9.8	7.7	66.2		57.9	97.5
Delay (s)	61.1	58.5	125.2		95.4	135.0
Level of Service	E	E	F		F	F
Approach Delay (s)		59.3	125.2		107.9	
Approach LOS		E	F		F	

Intersection Summary			
HCM 2000 Control Delay	91.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	53	1562	84	96	195	0	0	182	59
Future Volume (veh/h)	0	0	0	53	1562	84	96	195	0	0	182	59
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				58	1698	91	104	212	0	0	198	64
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				93	2877	159	147	280	0	0	456	147
Arrive On Green				0.58	0.58	0.57	0.11	0.11	0.00	0.00	0.32	0.32
Sat Flow, veh/h				159	4933	273	331	863	0	0	1404	454
Grp Volume(v), veh/h				678	564	605	316	0	0	0	0	262
Grp Sat Flow(s),veh/h/ln				1855	1695	1815	1193	0	0	0	0	1857
Q Serve(g_s), s				28.8	24.9	25.0	19.6	0.0	0.0	0.0	0.0	13.3
Cycle Q Clear(g_c), s				28.8	24.9	25.0	32.9	0.0	0.0	0.0	0.0	13.3
Prop In Lane				0.09		0.15	0.33		0.00	0.00		0.24
Lane Grp Cap(c), veh/h				1082	989	1058	428	0	0	0	0	604
V/C Ratio(X)				0.63	0.57	0.57	0.74	0.00	0.00	0.00	0.00	0.43
Avail Cap(c_a), veh/h				1082	989	1058	428	0	0	0	0	604
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				16.4	15.6	15.7	53.3	0.0	0.0	0.0	0.0	31.8
Incr Delay (d2), s/veh				2.8	2.4	2.2	10.9	0.0	0.0	0.0	0.0	2.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	12.2	13.1	11.6	0.0	0.0	0.0	0.0	7.2
LnGrp Delay(d),s/veh				19.2	18.0	17.9	64.2	0.0	0.0	0.0	0.0	34.1
LnGrp LOS				B	B	B	E					C
Approach Vol, veh/h					1847			316			262	
Approach Delay, s/veh					18.4			64.2			34.1	
Approach LOS					B			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		75.0		45.0				45.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		69.0		39.0				39.0
Max Q Clear Time (g_c+I1), s		30.8		34.9				15.3
Green Ext Time (p_c), s		8.3		0.9				1.9

Intersection Summary	
HCM 2010 Ctrl Delay	26.1
HCM 2010 LOS	C

Appendix E: Level of Service – No Build

- HCS 2025 (Freeway Segments)
- HCS 2045 (Freeway segments)
- Synchro 2025 (Intersections)
- Synchro 2045 (Intersections)

HCS 2025 (Freeway Segments)

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3326	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	875	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1768	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1768	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	29.7	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	SW 25th Rd Ent/SW 8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5106	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1344	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1809	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1809	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	3	
Density, D	30.6	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4852	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1277	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1719	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1719	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.7	mi/h
Number of lanes, N	3	
Density, D	28.8	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5093	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1340	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1805	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1805	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	3	
Density, D	30.5	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5776	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1520	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1535	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1535	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	25.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4309	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1134	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1145	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1145	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2221	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	584	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	787	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	787	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	13.1	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3383	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	890	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1199	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1199	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	SW 8th St Ent/SW 25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3604	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	948	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1277	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1277	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	21.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1890	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	497	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1005	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1005	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	16.8	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1873	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	493	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	996	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	996	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	16.6	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	SW 25th Rd Ent/SW 8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2947	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	776	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1044	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1044	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2660	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	700	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	943	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	943	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.7	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3440	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	905	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1219	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1219	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5093	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1340	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1354	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1354	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	22.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3529	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	929	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	938	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	938	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	15.6	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1701	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	448	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	603	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	603	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	10.1	pc/mi/ln
Level of service, LOS	A	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3306	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	870	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1172	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1172	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.5	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	SW 8th St Ent/SW 25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3489	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	918	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1236	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1236	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1735	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	457	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	922	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	922	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	15.4	pc/mi/ln
Level of service, LOS	B	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5106	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	254	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1780	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5106		254		1780		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1344		67		468		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5428	270	1892	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10791.45 Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3426$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5428	6900	No
$v_{FO} = v - v_R$	5158	6900	No
v_R	270	2100	No
v_3 or v_{av34}	2002 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3426 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 33.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.322

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_O = 61.9 mph

Space mean speed for all vehicles, S = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5106	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	254	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	500	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5106		254		500		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1344		67		132		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5428	270	532	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3426$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5428	6900	No
$v_{FO} = v - v_R$	5158	6900	No
v_R	270	2100	No
v_3 or v_{av34}	2002 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3426 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 33.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.322

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_O = 61.9 mph

Space mean speed for all vehicles, S = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	254	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4852	500	254	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1277	132	67	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5158	532	270	pcph

Estimation of V12 Merge Areas

L_{EQ} = 584.06 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3044 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5690	6900	No
v_3 or v_{av34}	2114 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 3044 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3576	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 30.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.433	
Space mean speed in ramp influence area,	S_R = 52.2	mph
Space mean speed in outer lanes,	S_0 = 54.2	mph
Space mean speed for all vehicles,	S = 52.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1200	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4852	500	1200	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1277	132	316	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5158	532	1276	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 3044$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5690	6900	No
v_3 or v_{av34}	2114 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 3044$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3576	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 30.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.433$

Space mean speed in ramp influence area, $S_R = 52.2$ mph

Space mean speed in outer lanes, $S_0 = 54.2$ mph

Space mean speed for all vehicles, $S = 52.9$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5776	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1467	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2088	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5776		1467		2088		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1520		386		549		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6141	1560	2220	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3557$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6141	9200	No
$v_{FO} = v - v_R$	4581	9200	No
v_R	1560	2100	No
v_3 or v_{av34}	1292 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3557 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3557	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 34.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.438

Space mean speed in ramp influence area, S_R = 52.1 mph

Space mean speed in outer lanes, S_O = 64.7 mph

Space mean speed for all vehicles, S = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2221	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	128	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2088	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2221	128	2088	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	584	34	549	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2361	136	2220	pcph

Estimation of V12 Merge Areas

L_{EQ} = 641.16 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1387 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2497	6900	No
v_3 or v_{av34}		974 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1387 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1523	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.307

Space mean speed in ramp influence area, S_R = 54.5 mph

Space mean speed in outer lanes, S_0 = 58.3 mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2221	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	128	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1034	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2221	128	1034	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	584	34	272	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2361	136	1099	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1387 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2497	6900	No
v_3 or v_{av34}	974 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1387 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1523	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.307

Space mean speed in ramp influence area, S_R = 54.5 mph

Space mean speed in outer lanes, S_0 = 58.3 mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2349	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1034	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	128	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2349	1034	128	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	618	272	34	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2497	1099	136	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3596	6900	No
v_3 or v_{av34}	1003 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /12	Yes	

If yes, v_{12A} = 1494 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2772	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2349	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1034	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2349	1034	221	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	618	272	58	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2497	1099	235	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3596	6900	No
v_3 or v_{av34}	1003 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /12	Yes	

If yes, v_{12A} = 1494 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2772	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3383	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1034	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3383	221	1034	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	890	58	272	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3597	235	1099	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.608$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 2188$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3832	6900	No
v_3 or v_{av34}	1409 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /12	Yes	

If yes, $v_{12A} = 2188$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2423	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 17.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S = 0.266$

Space mean speed in ramp influence area, $S_R = 55.2$ mph

Space mean speed in outer lanes, $S_0 = 56.7$ mph

Space mean speed for all vehicles, $S = 55.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3383	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1714	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3383	221	1714	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	890	58	451	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3597	235	1822	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8015.84 (Equation 13-6 or 13-7)

P_{FM} = 0.694 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2496 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3832	6900	No
v_3 or v_{av34}	1101 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 2496 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2731	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.282	
Space mean speed in ramp influence area,	S_R = 54.9	mph
Space mean speed in outer lanes,	S_0 = 57.8	mph
Space mean speed for all vehicles,	S = 55.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2947	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1074	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2947		287		1074		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	776		76		283		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3133	305	1142	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 9526.27 (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2193$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3133	6900	No
$v_{FO} = v - v_R$	2828	6900	No
v_R	305	2100	No
v_3 or v_{av34}	940 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2193 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2193	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.325

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2947	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	489	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2947		287		489		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	776		76		129		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3133	305	520	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2193$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3133	6900	No
$v_{FO} = v - v_R$	2828	6900	No
v_R	305	2100	No
v_3 or v_{av34}	940 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2193 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2193	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.325

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	489	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	287	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2660	489	287	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	700	129	76	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2828	520	305	pcph

Estimation of V12 Merge Areas

L_{EQ} = 82.87 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1669 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3348	6900	No
v_3 or v_{av34}	1159 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1669 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2189	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.329	
Space mean speed in ramp influence area,	S_R = 54.1	mph
Space mean speed in outer lanes,	S_0 = 57.6	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	489	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	947	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2660	489	947	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	700	129	249	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2828	520	1007	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 1669$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3348	6900	No
v_3 or v_{av34}	1159 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, $v_{12A} = 1669$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2189	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_{12} - 0.00627\ L_A = 19.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.329	
Space mean speed in ramp influence area,	S_R = 54.1	mph
Space mean speed in outer lanes,	S_0 = 57.6	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5093	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1564	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1828	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5093		1564		1828		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1340		412		481		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5415	1663	1943	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3299$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5415	9200	No
$v_{FO} = v - v_R$	3752	9200	No
v_R	1663	2100	No
v_3 or v_{av34}	1058 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3299 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3299	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 32.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.448

Space mean speed in ramp influence area, S_R = 51.9 mph

Space mean speed in outer lanes, S_O = 65.6 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1701	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	394	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1828	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1701	394	1828	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	448	104	481	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1808	419	1943	pcph

Estimation of V12 Merge Areas

L_{EQ} = 583.38 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1062 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2227	6900	No
v_3 or v_{av34}	746 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1062 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.307	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 59.1	mph
Space mean speed for all vehicles,	S = 55.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1701	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	394	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1211	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1701	394	1211	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	448	104	319	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1808	419	1287	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1062 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2227	6900	No
v_3 or v_{av34}		746 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	
If yes, v_{12A}	= 1062		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.307	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 59.1	mph
Space mean speed for all vehicles,	S = 55.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2095	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1211	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	394	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2095	1211	394	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	551	319	104	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2227	1287	419	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1333 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3514	6900	No
v_3 or v_{av34}	894 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1333 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2779	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 59.2	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2095	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1211	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	183	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2095	1211	183	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	551	319	48	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2227	1287	195	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1333 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3514	6900	No
v_3 or v_{av34}	894 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1333 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2779	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 59.2	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3306	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1754	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3306	183	1754	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	870	48	462	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3515	195	1865	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8205.02 (Equation 13-6 or 13-7)

P_{FM} = 0.697 Using Equation 5

$v_{12} = v_F (P_{FM}) =$ 2451 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3710	6900	No
v_3 or v_{av34}	1064 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2451 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2646	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_{12} - 0.00627\ L_A =$ 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.277	
Space mean speed in ramp influence area,	S_R = 55.0	mph
Space mean speed in outer lanes,	S_0 = 58.0	mph
Space mean speed for all vehicles,	S = 55.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3306	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1211	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3306	183	1211	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	870	48	319	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3515	195	1287	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2138 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3710	6900	No
v_3 or v_{av34}	1377 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2138 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2333	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.262	
Space mean speed in ramp influence area,	S_R = 55.3	mph
Space mean speed in outer lanes,	S_0 = 56.8	mph
Space mean speed for all vehicles,	S = 55.9	mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Rd

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3326	60	2	2.0%	0.95	1.5	0.985	1.00	3555	4600	No	0.77
Merging[2]	1780	45	2	2.0%	0.95	1.5	0.985	1.00	1903	4200	No	0.45
Downstream[1]	5106	60	3	2.0%	0.95	1.5	0.985	1.00	5457	6900	No	0.79

No Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	1873	60	2	2.0%	0.95	1.5	0.985	1.00	2002	4600	No	0.44
Merging[2]	1074	45	2	2.0%	0.95	1.5	0.985	1.00	1148	4200	No	0.27
Downstream[1]	2947	60	3	2.0%	0.95	1.5	0.985	1.00	3150	6900	No	0.46

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	5093	60	3	2.0%	0.95	1.5	0.985	1.00	5443	6900	No	0.79
Merging[2]	441	45	2	2.0%	0.95	1.5	0.985	1.00	472	4200	No	0.11
Downstream[1]	5534	60	5	2.0%	0.95	1.5	0.985	1.00	5914	11500	No	0.51

No Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3440	60	3	2.0%	0.95	1.5	0.985	1.00	3677	6900	No	0.53
Merging[2]	2628	45	2	2.0%	0.95	1.5	0.985	1.00	2809	4200	No	0.67
Downstream[1]	6068	60	5	2.0%	0.95	1.5	0.985	1.00	6485	11500	No	0.56

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to EB 970

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4309	60	4	2.0%	0.95	1.5	0.985	1.00	4605	9200	No	0.50
Diverging[2]	2088	45	2	2.0%	0.95	1.5	0.985	1.00	2232	4200	No	0.53
Downstream[1]	2221	60	3	2.0%	0.95	1.5	0.985	1.00	2374	6900	No	0.34

No Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3529	60	4	2.0%	0.95	1.5	0.985	1.00	3772	9200	No	0.41
Diverging[2]	1828	45	2	2.0%	0.95	1.5	0.985	1.00	1954	4200	No	0.47
Downstream[1]	1701	60	3	2.0%	0.95	1.5	0.985	1.00	1818	6900	No	0.26

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to SW 25th Rd

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3604	60	3	2.0%	0.95	1.5	0.985	1.00	3852	6900	No	0.56
Diverging[2]	1714	45	2	2.0%	0.95	1.5	0.985	1.00	1832	4200	No	0.44
Downstream[1]	1890	60	2	2.0%	0.95	1.5	0.985	1.00	2020	4600	No	0.44

No Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3489	60	3	2.0%	0.95	1.5	0.985	1.00	3729	6900	No	0.54
Diverging[2]	1754	45	2	2.0%	0.95	1.5	0.985	1.00	1875	4200	No	0.45
Downstream[1]	1735	60	2	2.0%	0.95	1.5	0.985	1.00	1855	4600	No	0.40

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2025 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	4512	1176	840	44	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1187	309	221	12	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4797	1250	893	47	pc/h

Volume ratio, VR 0.007

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	141	lc/h
Weaving lane changes, LCW	472	lc/h
Non-weaving vehicle index, INW	777	
Non-weaving lane change, LCNW	1418	lc/h
Total lane changes, LCALL	1890	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.286	
Average weaving speed, SW	50.0	mi/h
Average non-weaving speed, SNW	50.6	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	50.6	mi/h
Weaving segment density, D	34.5	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.889	
Weaving segment flow rate, v	6918	veh/h
Weaving segment capacity, cW	7778	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5790	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1964	c
		Maximum	Analyzed	
v/c ratio		1.00	0.889	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2025 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	4787	1190	565	30	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1260	313	149	8	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5089	1265	601	32	pc/h

Volume ratio, VR 0.005

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	96	lc/h
Weaving lane changes, LCW	531	lc/h
Non-weaving vehicle index, INW	1224	
Non-weaving lane change, LCNW	1855	lc/h
Total lane changes, LCALL	2386	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.241	
Average weaving speed, SW	51.3	mi/h
Average non-weaving speed, SNW	50.9	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	50.9	mi/h
Weaving segment density, D	34.3	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.862	
Weaving segment flow rate, v	6918	veh/h
Weaving segment capacity, cW	8028	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5770	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2027	c
		Maximum	Analyzed	
v/c ratio		1.00	0.862	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2025 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	2947	936	202	11	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	776	246	53	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3133	995	215	12	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	36	lc/h
Weaving lane changes, LCW	367	lc/h
Non-weaving vehicle index, INW	486	
Non-weaving lane change, LCNW	883	lc/h
Total lane changes, LCALL	1250	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.207	
Average weaving speed, SW	52.3	mi/h
Average non-weaving speed, SNW	54.5	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.5	mi/h
Weaving segment density, D	20.0	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.553	
Weaving segment flow rate, v	4312	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5753	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.553	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2025 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	2728	925	421	22	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	718	243	111	6	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2900	983	448	23	pc/h

Volume ratio, VR 0.005

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	69	lc/h
Weaving lane changes, LCW	504	lc/h
Non-weaving vehicle index, INW	762	
Non-weaving lane change, LCNW	1314	lc/h
Total lane changes, LCALL	1818	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.194	
Average weaving speed, SW	52.7	mi/h
Average non-weaving speed, SNW	54.3	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.3	mi/h
Weaving segment density, D	20.1+	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.537	
Weaving segment flow rate, v	4312	veh/h
Weaving segment capacity, cW	8024	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5776	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2026	c
		Maximum	Analyzed	
v/c ratio		1.00	0.537	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2045 (Freeway Segments)

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3675	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	967	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1954	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1954	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	2	
Density, D	33.9	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5641	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1484	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1999	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1999	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.1	mi/h
Number of lanes, N	3	
Density, D	35.0+	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5345	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1407	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1894	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1894	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	58.4	mi/h
Number of lanes, N	3	
Density, D	32.4	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5761	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1516	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	2042	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	2042	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes, N	3	
Density, D	36.2	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	6382	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1679	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1696	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1696	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.8	mi/h
Number of lanes, N	4	
Density, D	28.3	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4761	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1253	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1265	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1265	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	21.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2454	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	646	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	870	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	870	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.5	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3739	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	984	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1325	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1325	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	22.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	8th St Ent/25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4007	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1054	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1420	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1420	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.7	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2113	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	556	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1123	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1123	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.7	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2070	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	545	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1100	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1100	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3257	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	857	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1154	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1154	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.2	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2922	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	769	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1036	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1036	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3901	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1027	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1382	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1382	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.0	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5627	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1481	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1496	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1496	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	24.9	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3899	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1026	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1036	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1036	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1879	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	494	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3653	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	961	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1295	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1295	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	21.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	8th St Ent/25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3874	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1019	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1373	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1373	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	22.9	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1936	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	509	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1029	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1029	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	17.1	pc/mi/ln
Level of service, LOS	B	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1966	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		1966		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		517		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	2090	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11297.85 Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3699$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	591	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		591		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		156		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	628	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3699$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	591	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	296	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	591	296	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	156	78	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	628	315	pcph

Estimation of V12 Merge Areas

L_{EQ} = 716.95 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3354 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6311	6900	No
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes

If yes, v_{12A} = 3354 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3982	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 33.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.503
Space mean speed in ramp influence area,	S_R = 50.9 mph
Space mean speed in outer lanes,	S_0 = 53.3 mph
Space mean speed for all vehicles,	S = 51.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	591	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1459	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	591	1459	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	156	384	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	628	1551	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3354 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6311	6900	No
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 3354 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3982	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 33.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.503

Space mean speed in ramp influence area, S_R = 50.9 mph

Space mean speed in outer lanes, S_0 = 53.3 mph

Space mean speed for all vehicles, S = 51.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6382	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1621	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2307	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6382	1621	2307	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1679	427	607	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6785	1723	2453	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3930 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6785	9200	No
$v_{FO} = v - v_{FR}$	5062	9200	No
v_R	1723	2100	No
v_3 or v_{av34}	1427 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3930 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3930	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 38.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.453

Space mean speed in ramp influence area, S_R = 51.8 mph

Space mean speed in outer lanes, S_0 = 64.2 mph

Space mean speed for all vehicles, S = 56.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2454	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	142	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2307	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2454	142	2307	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	646	37	607	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2609	151	2453	pcph

Estimation of V12 Merge Areas

L_{EQ} = 697.44 (Equation 13-6 or 13-7)

P_{FM} = 0.584 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1524 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2760	6900	No
v_3 or v_{av34}		1085 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1524 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1675	4600	No

Level of Service Determination (if not F)

$D = 5.475 + 0.00734\, v_R + 0.0078\, v_R - 0.00627\, L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 57.9	mph
Space mean speed for all vehicles,	S = 55.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2454	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	142	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1143	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2454	142	1143	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	646	37	301	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2609	151	1215	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1532 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2760	6900	No
v_3 or v_{av34}		1077 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1532 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1683	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 57.9	mph
Space mean speed for all vehicles,	S = 55.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2596	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1143	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	142	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2596	1143	142	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	683	301	37	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2760	1215	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1652 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3975	6900	No
v_3 or v_{av34}		1108 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12		Yes	

If yes, v_{12A} = 1652 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3065	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S	= 0.337
Space mean speed in ramp influence area, S_R	= 53.9 mph
Space mean speed in outer lanes, S_0	= 58.5 mph
Space mean speed for all vehicles, S	= 54.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2596	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1143	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	268	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2596	1143	268	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	683	301	71	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2760	1215	285	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1652 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3975	6900	No
v_3 or v_{av34}		1108 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1652 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3065	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S	0.337
Space mean speed in ramp influence area, S_R	53.9 mph
Space mean speed in outer lanes, S_0	58.5 mph
Space mean speed for all vehicles, S	54.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3739	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	268	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1143	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3739	268	1143	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	984	71	301	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3975	285	1215	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2418 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4260	6900	No
v_3 or v_{av34}	1557 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	
If yes, v_{12A} = 2418		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2703	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.280	
Space mean speed in ramp influence area,	S_R = 55.0	mph
Space mean speed in outer lanes,	S_0 = 56.2	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3739	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	268	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1894	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3739	268	1894	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	984	71	498	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3975	285	2014	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8860.54 (Equation 13-6 or 13-7)

P_{FM} = 0.709 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2819 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4260	6900	No
v_3 or v_{av34}	1156 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2819 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3104	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.309	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 57.6	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1187	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		1187		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		312		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3463	356	1262	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10210.93 Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3463	6900	No
$v_{FO} = v - v_R$	3107	6900	No
v_R	356	2100	No
v_3 or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2397 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	574	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		574		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		151		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3463	356	610	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3463	6900	No
$v_{FO} = v - v_R$	3107	6900	No
v_R	356	2100	No
v_3 or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2397 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	574	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	574	335	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	151	88	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	610	356	pcph

Estimation of V12 Merge Areas

L_{EQ} = 161.84 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1833 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3717	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	
If yes, v_{12A} = 1833		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2443	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.339	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_0 = 57.2	mph
Space mean speed for all vehicles,	S = 55.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	574	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1130	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	574	1130	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	151	297	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	610	1201	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1833 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3717	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1833 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2443	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.339	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_0 = 57.2	mph
Space mean speed for all vehicles,	S = 55.0	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5627	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1728	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2020	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5627		1728		2020		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1481		455		532		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5982	1837	2148	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3644$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5982	9200	No
$v_{FO} = v - v_R$	4145	9200	No
v_R	1837	2100	No
v_3 or v_{av34}	1169 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 3644$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3644	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 35.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.463$

Space mean speed in ramp influence area, $S_R = 51.7$ mph

Space mean speed in outer lanes, $S_0 = 65.2$ mph

Space mean speed for all vehicles, $S = 56.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1879	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	436	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2020	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1879	436	2020	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	494	115	532	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1998	464	2148	pcph

Estimation of V12 Merge Areas

L_{EQ} = 633.67 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2462	6900	No
v_3 or v_{av34}	825 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1173 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1637	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1879	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	436	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1338	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1879	436	1338	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	494	115	352	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1998	464	1423	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2462	6900	No
v_3 or v_{av34}	825 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /12	Yes	

If yes, v_{12A} = 1173 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1637	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_{12} - 0.00627\ L_A =$ 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2315	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1338	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	436	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2315	1338	436	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	609	352	115	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2461	1423	464	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1473 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3884	6900	No
v_3 or v_{av34}	988 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1473 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3072	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.338

Space mean speed in ramp influence area, S_R = 53.9 mph

Space mean speed in outer lanes, S_0 = 58.9 mph

Space mean speed for all vehicles, S = 54.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2315	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1338	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2315	1338	221	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	609	352	58	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2461	1423	235	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1473 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3884	6900	No
v_3 or v_{av34}	988 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1473 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3072	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.338	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_0 = 58.9	mph
Space mean speed for all vehicles,	S = 54.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3653	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1938	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3653	221	1938	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	961	58	510	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3884	235	2060	pcph

Estimation of V12 Merge Areas

L_{EQ} = 9062.91 (Equation 13-6 or 13-7)

P_{FM} = 0.713 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2768 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4119	6900	No
v_3 or v_{av34}	1116 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	
If yes, v_{12A} = 2768		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3003	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 54.6	mph
Space mean speed in outer lanes,	S_0 = 57.8	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 No Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3653	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1338	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3653	221	1338	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	961	58	352	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3884	235	1423	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2363 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4119	6900	No
v_3 or v_{av34}	1521 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2363 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2598	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.274

Space mean speed in ramp influence area, S_R = 55.1 mph

Space mean speed in outer lanes, S_0 = 56.3 mph

Space mean speed for all vehicles, S = 55.5 mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3675	60	2	2.0%	0.95	1.5	0.985	1.00	3928	4600	No	0.85
Merging[2]	1966	45	2	2.0%	0.95	1.5	0.985	1.00	2101	4200	No	0.50
Downstream[1]	5641	60	3	2.0%	0.95	1.5	0.985	1.00	6029	6900	No	0.87

No Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	2070	60	2	2.0%	0.95	1.5	0.985	1.00	2213	4600	No	0.48
Merging[2]	1187	45	2	2.0%	0.95	1.5	0.985	1.00	1269	4200	No	0.30
Downstream[1]	3257	60	3	2.0%	0.95	1.5	0.985	1.00	3481	6900	No	0.50

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	5761	60	3	2.0%	0.95	1.5	0.985	1.00	6157	6900	No	0.89
Merging[2]	488	45	2	2.0%	0.95	1.5	0.985	1.00	522	4200	No	0.12
Downstream[1]	6249	60	5	2.0%	0.95	1.5	0.985	1.00	6679	11500	No	0.58

No Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3901	60	3	2.0%	0.95	1.5	0.985	1.00	4169	6900	No	0.60
Merging[2]	2904	45	2	2.0%	0.95	1.5	0.985	1.00	3104	4200	No	0.74
Downstream[1]	6805	60	5	2.0%	0.95	1.5	0.985	1.00	7273	11500	No	0.63

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to EB 970

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4761	60	4	2.0%	0.95	1.5	0.985	1.00	5088	9200	No	0.55
Diverging[2]	2307	45	2	2.0%	0.95	1.5	0.985	1.00	2466	4200	No	0.59
Downstream[1]	2454	60	3	2.0%	0.95	1.5	0.985	1.00	2623	6900	No	0.38

No Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3899	60	4	2.0%	0.95	1.5	0.985	1.00	4167	9200	No	0.45
Diverging[2]	2020	45	2	2.0%	0.95	1.5	0.985	1.00	2159	4200	No	0.51
Downstream[1]	1879	60	3	2.0%	0.95	1.5	0.985	1.00	2009	6900	No	0.29

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

No Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4007	60	3	2.0%	0.95	1.5	0.985	1.00	4283	6900	No	0.62
Diverging[2]	1894	45	2	2.0%	0.95	1.5	0.985	1.00	2025	4200	No	0.48
Downstream[1]	2113	60	2	2.0%	0.95	1.5	0.985	1.00	2259	4600	No	0.49

No Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3874	60	3	2.0%	0.95	1.5	0.985	1.00	4140	6900	No	0.60
Diverging[2]	1938	45	2	2.0%	0.95	1.5	0.985	1.00	2072	4200	No	0.49
Downstream[1]	1936	60	2	2.0%	0.95	1.5	0.985	1.00	2069	4600	No	0.45

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5008	1410	928	49	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1318	371	244	13	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5324	1499	987	52	pc/h

Volume ratio, VR 0.007

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW	875	
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W		
Average weaving speed, SW		mi/h
Average non-weaving speed, SNW		mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.001	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	7778	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5789	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1964	c
		Maximum	Analyzed	
v/c ratio		1.00	1.001	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5312	1426	624	33	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1398	375	164	9	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5647	1516	663	35	pc/h

Volume ratio, VR 0.004

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	105	lc/h
Weaving lane changes, LCW	540	lc/h
Non-weaving vehicle index, INW	1377	
Non-weaving lane change, LCNW	2201	lc/h
Total lane changes, LCALL	2741	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.269	
Average weaving speed, SW	50.5	mi/h
Average non-weaving speed, SNW	49.8	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	49.8	mi/h
Weaving segment density, D	39.5	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.970	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	8028	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5769	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2027	c
		Maximum	Analyzed	
v/c ratio		1.00	0.970	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3272	1118	224	12	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	861	294	59	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3479	1189	238	13	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	39	lc/h
Weaving lane changes, LCW	370	lc/h
Non-weaving vehicle index, INW	549	
Non-weaving lane change, LCNW	999	lc/h
Total lane changes, LCALL	1369	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.222	
Average weaving speed, SW	51.8	mi/h
Average non-weaving speed, SNW	53.8	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.8	mi/h
Weaving segment density, D	22.9	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.625	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5752	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.625	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 No Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3031	1106	465	24	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	798	291	122	6	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3222	1176	494	26	pc/h

Volume ratio, VR 0.005

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	78	lc/h
Weaving lane changes, LCW	513	lc/h
Non-weaving vehicle index, INW	861	
Non-weaving lane change, LCNW	1430	lc/h
Total lane changes, LCALL	1943	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.205	
Average weaving speed, SW	52.3	mi/h
Average non-weaving speed, SNW	53.5	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.5	mi/h
Weaving segment density, D	23.0	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.607	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	8024	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5777	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2026	c
		Maximum	Analyzed	
v/c ratio		1.00	0.607	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

Synchro 2025 (Intersections)

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1309	52	0	0	0	0	169	50	154	154	0
Future Volume (vph)	255	1309	52	0	0	0	0	169	50	154	154	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4686						1745			1757	
Flt Permitted		0.99						1.00			0.51	
Satd. Flow (perm)		4686						1745			916	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	268	1378	55	0	0	0	0	178	53	162	162	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1698	0	0	0	0	0	220	0	0	324	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		44.7						28.0			43.0	
Effective Green, g (s)		44.7						28.0			43.0	
Actuated g/C Ratio		0.45						0.28			0.43	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2094						488			474	
v/s Ratio Prot								0.13			c0.07	
v/s Ratio Perm		0.36									c0.23	
v/c Ratio		0.81						0.45			0.68	
Uniform Delay, d1		24.0						29.7			23.0	
Progression Factor		1.00						1.00			0.77	
Incremental Delay, d2		3.5						3.0			7.3	
Delay (s)		27.5						32.7			25.0	
Level of Service		C						C			C	
Approach Delay (s)		27.5			0.0			32.7			25.0	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1418	8	0	0	0	0	80	494	0	0	0
Future Volume (veh/h)	87	1418	8	0	0	0	0	80	494	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	92	1493	8				0	84	520			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	140	1931	10				0	111	684			
Arrive On Green	0.41	0.41	0.41				0.00	0.49	0.49			
Sat Flow, veh/h	258	4730	25				0	225	1392			
Grp Volume(v), veh/h	569	489	536				0	0	604			
Grp Sat Flow(s),veh/h/ln	1780	1543	1691				0	0	1617			
Q Serve(g_s), s	28.4	32.9	32.9				0.0	0.0	36.4			
Cycle Q Clear(g_c), s	33.2	32.9	32.9				0.0	0.0	36.4			
Prop In Lane	0.16		0.01				0.00		0.86			
Lane Grp Cap(c), veh/h	762	630	690				0	0	795			
V/C Ratio(X)	0.75	0.78	0.78				0.00	0.00	0.76			
Avail Cap(c_a), veh/h	762	630	690				0	0	795			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	30.7	30.7	30.7				0.0	0.0	24.7			
Incr Delay (d2), s/veh	6.6	9.1	8.3				0.0	0.0	6.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	17.7	15.6	16.9				0.0	0.0	17.6			
LnGrp Delay(d),s/veh	37.3	39.8	39.1				0.0	0.0	31.5			
LnGrp LOS	D	D	D						C			
Approach Vol, veh/h		1593						604				
Approach Delay, s/veh		38.7						31.5				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				65.0		55.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				59.0		49.0		
Max Q Clear Time (g_c+I1), s				38.4		35.2		
Green Ext Time (p_c), s				3.8		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1874	38	0	0	0	0	0	0	1656	532	0
Future Volume (veh/h)	0	1874	38	0	0	0	0	0	0	1656	532	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1973	40							1743	560	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2506	51							2281	782	0
Arrive On Green	0.00	0.14	0.14							0.15	0.15	0.00
Sat Flow, veh/h	0	6097	119							4503	1676	0
Grp Volume(v), veh/h	0	1456	557							1743	560	0
Grp Sat Flow(s),veh/h/ln	0	1442	1655							1501	1676	0
Q Serve(g_s), s	0.0	39.0	39.0							45.1	38.1	0.0
Cycle Q Clear(g_c), s	0.0	39.0	39.0							45.1	38.1	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1849	708							2281	782	0
V/C Ratio(X)	0.00	0.79	0.79							0.76	0.72	0.00
Avail Cap(c_a), veh/h	0	1849	708							2281	782	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.55	0.55							0.22	0.22	0.00
Uniform Delay (d), s/veh	0.0	46.3	46.3							46.1	43.2	0.0
Incr Delay (d2), s/veh	0.0	1.9	4.9							0.6	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.9	18.9							18.8	18.0	0.0
LnGrp Delay(d),s/veh	0.0	48.2	51.2							46.7	44.5	0.0
LnGrp LOS		D	D							D	D	
Approach Vol, veh/h		2013									2303	
Approach Delay, s/veh		49.0									46.2	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		58.0		62.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 51		56.0				
Max Q Clear Time (g_c+I1), s		41.0		47.1				
Green Ext Time (p_c), s		6.9		5.8				

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/11/2018

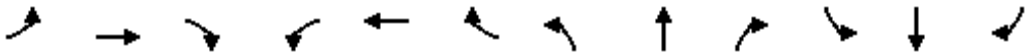
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	2103	171	0	0	0	0	261	334	9	329	0
Future Volume (veh/h)	36	2103	171	0	0	0	0	261	334	9	329	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	38	2214	0				0	275	352	9	346	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	46	2828	0				0	489	416	169	489	0
Arrive On Green	0.61	0.61	0.00				0.00	0.29	0.29	0.39	0.39	0.00
Sat Flow, veh/h	75	4800	0				0	1676	1425	716	1676	0
Grp Volume(v), veh/h	847	1405	0				0	275	352	9	346	0
Grp Sat Flow(s),veh/h/ln	1673	1526	0				0	1676	1425	716	1676	0
Q Serve(g_s), s	48.2	40.1	0.0				0.0	16.7	27.9	1.2	20.9	0.0
Cycle Q Clear(g_c), s	48.2	40.1	0.0				0.0	16.7	27.9	17.9	20.9	0.0
Prop In Lane	0.04		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1018	1856	0				0	489	416	169	489	0
V/C Ratio(X)	0.83	0.76	0.00				0.00	0.56	0.85	0.05	0.71	0.00
Avail Cap(c_a), veh/h	1018	1856	0				0	489	416	169	489	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	17.1	0.0				0.0	36.0	40.0	38.3	32.4	0.0
Incr Delay (d2), s/veh	7.9	2.9	0.0				0.0	4.6	18.8	0.1	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.4	17.5	0.0				0.0	8.3	13.1	0.2	10.2	0.0
LnGrp Delay(d),s/veh	26.6	20.0	0.0				0.0	40.6	58.8	38.3	36.8	0.0
LnGrp LOS	C	C						D	E	D	D	
Approach Vol, veh/h		2252						627			355	
Approach Delay, s/veh		22.5						50.8			36.8	
Approach LOS		C						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				41.0		79.0		41.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				35.0		73.0		35.0
Max Q Clear Time (g_c+I1), s				29.9		50.2		22.9
Green Ext Time (p_c), s				1.2		15.8		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	29.6
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	413	1767	266	0	0	0	0	990	90	259	433	0
Future Volume (vph)	413	1767	266	0	0	0	0	990	90	259	433	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4274						4476			3096	
Flt Permitted		0.99						1.00			0.55	
Satd. Flow (perm)		4274						4476			1745	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	435	1860	280	0	0	0	0	1042	95	273	456	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	2562	0	0	0	0	0	1128	0	0	729	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		61.7						30.7			45.7	
Effective Green, g (s)		61.7						30.7			45.7	
Actuated g/C Ratio		0.51						0.26			0.38	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2197						1145			788	
v/s Ratio Prot								0.25			c0.08	
v/s Ratio Perm		0.60									c0.27	
v/c Ratio		1.17						0.99			1.58dl	
Uniform Delay, d1		29.1						44.4			35.5	
Progression Factor		0.90						1.00			0.27	
Incremental Delay, d2		77.4						23.3			12.1	
Delay (s)		103.6						67.7			21.5	
Level of Service		F						E			C	
Approach Delay (s)		103.6			0.0			67.7			21.5	
Approach LOS		F			A			E			C	

Intersection Summary			
HCM 2000 Control Delay	80.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1607	509	0	0	0	0	0	0	248	556	0
Future Volume (veh/h)	0	1607	509	0	0	0	0	0	0	248	556	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1692	536							261	585	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2062	635							301	595	0
Arrive On Green	0.00	0.20	0.20							0.10	0.10	0.00
Sat Flow, veh/h	0	3586	1059							842	2060	0
Grp Volume(v), veh/h	0	1482	746							431	415	0
Grp Sat Flow(s),veh/h/ln	0	1511	1473							1391	1435	0
Q Serve(g_s), s	0.0	56.3	58.5							36.0	34.5	0.0
Cycle Q Clear(g_c), s	0.0	56.3	58.5							36.0	34.5	0.0
Prop In Lane	0.00		0.72							0.61		0.00
Lane Grp Cap(c), veh/h	0	1813	884							466	431	0
V/C Ratio(X)	0.00	0.82	0.84							0.93	0.96	0.00
Avail Cap(c_a), veh/h	0	1813	884							466	431	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.09	0.09							0.87	0.87	0.00
Uniform Delay (d), s/veh	0.0	41.8	42.7							54.6	53.4	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.0							24.3	32.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	23.7	24.1							17.5	17.6	0.0
LnGrp Delay(d),s/veh	0.0	42.2	43.7							78.9	85.6	0.0
LnGrp LOS		D	D							E	F	
Approach Vol, veh/h		2228									846	
Approach Delay, s/veh		42.7									82.2	
Approach LOS		D									F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		78.0		42.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		72.0		36.0				
Max Q Clear Time (g_c+I1), s		60.5		38.0				
Green Ext Time (p_c), s		6.0		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	53.6
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	1626	0	0	0	0	0	660	77	0	0	0
Future Volume (veh/h)	229	1626	0	0	0	0	0	660	77	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	241	1712	0				0	695	81			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	358	2300	0				0	1168	135			
Arrive On Green	0.20	0.20	0.00				0.00	0.28	0.28			
Sat Flow, veh/h	515	3866	0				0	4271	476			
Grp Volume(v), veh/h	700	1253	0				0	508	268			
Grp Sat Flow(s),veh/h/ln	1496	1375	0				0	1511	1576			
Q Serve(g_s), s	52.9	51.3	0.0				0.0	17.4	17.6			
Cycle Q Clear(g_c), s	52.9	51.3	0.0				0.0	17.4	17.6			
Prop In Lane	0.34		0.00				0.00		0.30			
Lane Grp Cap(c), veh/h	963	1696	0				0	856	447			
V/C Ratio(X)	0.73	0.74	0.00				0.00	0.59	0.60			
Avail Cap(c_a), veh/h	963	1696	0				0	856	447			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.43	0.43	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	39.4	38.7	0.0				0.0	37.0	37.1			
Incr Delay (d2), s/veh	2.1	1.3	0.0				0.0	3.0	5.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	22.5	19.9	0.0				0.0	7.6	8.4			
LnGrp Delay(d),s/veh	41.5	40.0	0.0				0.0	40.1	43.0			
LnGrp LOS	D	D						D	D			
Approach Vol, veh/h		1953						776				
Approach Delay, s/veh		40.5						41.1				
Approach LOS		D						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		40.0		80.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		34.0		74.0				
Max Q Clear Time (g_c+I1), s		19.6		54.9				
Green Ext Time (p_c), s		4.4		13.6				

Intersection Summary		
HCM 2010 Ctrl Delay		40.7
HCM 2010 LOS		D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	607	68	309	580	0	0	0	0
Future Volume (vph)	0	0	0	0	607	68	309	580	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4463		1435	3014				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4463		1435	3014				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	639	72	325	611	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	55	13	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	700	0	237	631	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					45.0		63.0	63.0				
Effective Green, g (s)					45.0		63.0	63.0				
Actuated g/C Ratio					0.38		0.52	0.52				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					1673		753	1582				
v/s Ratio Prot					c0.16							
v/s Ratio Perm							0.17	0.21				
v/c Ratio					0.42		0.32	0.40				
Uniform Delay, d1					27.8		16.2	17.1				
Progression Factor					1.00		0.29	0.48				
Incremental Delay, d2					0.8		0.8	0.6				
Delay (s)					28.6		5.6	8.9				
Level of Service					C		A	A				
Approach Delay (s)		0.0			28.6			7.9			0.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	127	789	0	0	0	0	0	677	337
Future Volume (vph)	0	0	0	127	789	0	0	0	0	0	677	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4501						3000	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4501						3000	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	134	831	0	0	0	0	0	713	355
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	3	31
Lane Group Flow (vph)	0	0	0	0	947	0	0	0	0	0	746	288
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					47.0						61.0	61.0
Effective Green, g (s)					47.0						61.0	61.0
Actuated g/C Ratio					0.39						0.51	0.51
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					1762						1525	652
v/s Ratio Prot											c0.25	
v/s Ratio Perm					0.21							0.22
v/c Ratio					0.54						0.49	0.44
Uniform Delay, d1					28.1						19.3	18.7
Progression Factor					0.37						1.00	1.00
Incremental Delay, d2					1.1						1.1	2.2
Delay (s)					11.5						20.4	20.9
Level of Service					B						C	C
Approach Delay (s)		0.0			11.5			0.0			20.6	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	854	207	282	1121	0	0	627	177
Future Volume (veh/h)	0	0	0	65	854	207	282	1121	0	0	627	177
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				68	899	218	297	1180	0	0	660	186
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				84	1175	295	383	1787	0	0	831	234
Arrive On Green				0.11	0.11	0.11	0.35	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				252	3524	886	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				444	371	370	297	1180	0	0	428	418
Grp Sat Flow(s),veh/h/ln				1648	1511	1504	1581	1577	0	0	1577	1539
Q Serve(g_s), s				31.6	28.5	28.6	10.6	0.0	0.0	0.0	29.4	29.5
Cycle Q Clear(g_c), s				31.6	28.5	28.6	10.6	0.0	0.0	0.0	29.4	29.5
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				549	504	501	383	1787	0	0	539	526
V/C Ratio(X)				0.81	0.74	0.74	0.78	0.66	0.00	0.00	0.79	0.80
Avail Cap(c_a), veh/h				549	504	501	409	1787	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.84	0.84	0.84	0.12	0.12	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				49.7	48.3	48.3	33.0	0.0	0.0	0.0	35.7	35.7
Incr Delay (d2), s/veh				10.4	7.8	8.0	1.0	0.2	0.0	0.0	11.5	11.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.0	13.0	13.0	8.2	0.1	0.0	0.0	14.6	14.3
LnGrp Delay(d),s/veh				60.1	56.1	56.3	34.0	0.2	0.0	0.0	47.1	47.5
LnGrp LOS				E	E	E	C	A			D	D
Approach Vol, veh/h					1185			1477			846	
Approach Delay, s/veh					57.7			7.0			47.3	
Approach LOS					E			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		46.0		74.0			27.0	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		33.6		2.0			12.6	31.5
Green Ext Time (p_c), s		1.9		3.9			0.3	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	338	899	76	191	106	0	0	0	0
Future Volume (veh/h)	0	0	0	338	899	76	191	106	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				356	946	80	201	112	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				837	2161	184	297	249	0			
Arrive On Green				0.25	0.25	0.25	0.05	0.05	0.00			
Sat Flow, veh/h				1044	2881	245	1581	1660	0			
Grp Volume(v), veh/h				452	450	480	201	112	0			
Grp Sat Flow(s),veh/h/ln				1327	1375	1468	1581	1660	0			
Q Serve(g_s), s				34.7	33.1	33.1	15.1	7.9	0.0			
Cycle Q Clear(g_c), s				34.7	33.1	33.1	15.1	7.9	0.0			
Prop In Lane				0.79		0.17	1.00		0.00			
Lane Grp Cap(c), veh/h				1049	1031	1101	297	249	0			
V/C Ratio(X)				0.43	0.44	0.44	0.68	0.45	0.00			
Avail Cap(c_a), veh/h				1049	1031	1101	561	526	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.54	0.54	0.54	0.80	0.80	0.00			
Uniform Delay (d), s/veh				24.3	23.7	23.7	55.7	52.2	0.0			
Incr Delay (d2), s/veh				0.7	0.7	0.7	1.6	0.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				13.0	12.9	13.7	6.8	3.7	0.0			
LnGrp Delay(d),s/veh				25.0	24.5	24.4	57.3	53.0	0.0			
LnGrp LOS				C	C	C	E	D				
Approach Vol, veh/h					1382			313				
Approach Delay, s/veh					24.6			55.8				
Approach LOS					C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		96.0		24.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		70.0		38.0				
Max Q Clear Time (g_c+I1), s		36.7		17.1				
Green Ext Time (p_c), s		3.4		0.8				

Intersection Summary	
HCM 2010 Ctrl Delay	30.4
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	627	463	243	13	1318	464
Future Volume (vph)	627	463	243	13	1318	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.99	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1449	2996	3161		3087	1297
Flt Permitted	0.95	0.98	1.00		0.95	1.00
Satd. Flow (perm)	1449	2996	3161		3087	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	660	487	256	14	1387	488
RTOR Reduction (vph)	76	76	4	0	0	0
Lane Group Flow (vph)	300	695	266	0	1436	439
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	31.0	31.0	9.8		58.5	58.5
Effective Green, g (s)	31.0	31.0	9.8		58.5	58.5
Actuated g/C Ratio	0.26	0.26	0.08		0.49	0.49
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	374	773	258		1504	632
v/s Ratio Prot			c0.08		c0.47	
v/s Ratio Perm	0.21	0.23				0.34
v/c Ratio	0.80	0.90	1.03		0.95	0.69
Uniform Delay, d1	41.6	43.0	55.1		29.5	23.8
Progression Factor	0.96	0.97	1.00		1.00	1.00
Incremental Delay, d2	15.4	14.6	64.7		13.8	3.3
Delay (s)	55.5	56.1	119.8		43.3	27.1
Level of Service	E	E	F		D	C
Approach Delay (s)		55.9	119.8		39.5	
Approach LOS		E	F		D	

Intersection Summary			
HCM 2000 Control Delay	51.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/11/2018

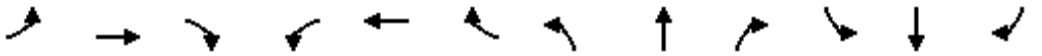
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	53	807	56	72	352	0	0	255	98
Future Volume (veh/h)	0	0	0	53	807	56	72	352	0	0	255	98
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				56	849	59	76	371	0	0	268	103
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				94	1509	108	170	805	0	0	760	292
Arrive On Green				0.32	0.32	0.31	1.00	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				292	4716	338	224	1412	0	0	1334	513
Grp Volume(v), veh/h				354	295	315	447	0	0	0	0	371
Grp Sat Flow(s),veh/h/ln				1848	1695	1803	1636	0	0	0	0	1847
Q Serve(g_s), s				16.1	14.3	14.4	1.0	0.0	0.0	0.0	0.0	10.8
Cycle Q Clear(g_c), s				16.1	14.3	14.4	11.8	0.0	0.0	0.0	0.0	10.8
Prop In Lane				0.16		0.19	0.17		0.00	0.00		0.28
Lane Grp Cap(c), veh/h				591	542	577	975	0	0	0	0	1053
V/C Ratio(X)				0.60	0.54	0.55	0.46	0.00	0.00	0.00	0.00	0.35
Avail Cap(c_a), veh/h				591	542	577	975	0	0	0	0	1053
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.88	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				28.6	28.0	28.1	0.0	0.0	0.0	0.0	0.0	11.6
Incr Delay (d2), s/veh				4.4	3.9	3.7	1.4	0.0	0.0	0.0	0.0	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.9	7.3	7.8	0.4	0.0	0.0	0.0	0.0	5.7
LnGrp Delay(d),s/veh				33.0	31.9	31.8	1.4	0.0	0.0	0.0	0.0	12.5
LnGrp LOS				C	C	C	A					B
Approach Vol, veh/h					964			447			371	
Approach Delay, s/veh					32.3			1.4			12.5	
Approach LOS					C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		37.0		63.0				63.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		31.0		57.0				57.0
Max Q Clear Time (g_c+I1), s		18.1		13.8				12.8
Green Ext Time (p_c), s		0.8		1.6				1.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	1162	25	0	0	0	0	128	36	122	148	0
Future Volume (vph)	193	1162	25	0	0	0	0	128	36	122	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4701						1747			1761	
Flt Permitted		0.99						1.00			0.63	
Satd. Flow (perm)		4701						1747			1141	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	203	1223	26	0	0	0	0	135	38	128	156	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1450	0	0	0	0	0	165	0	0	284	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		54.7						38.0			53.0	
Effective Green, g (s)		54.7						38.0			53.0	
Actuated g/C Ratio		0.46						0.32			0.44	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2142						553			553	
v/s Ratio Prot								0.09			c0.04	
v/s Ratio Perm		0.31									c0.19	
v/c Ratio		0.68						0.30			0.51	
Uniform Delay, d1		25.7						30.9			24.2	
Progression Factor		1.00						1.00			0.41	
Incremental Delay, d2		1.7						1.4			3.0	
Delay (s)		27.4						32.3			13.0	
Level of Service		C						C			B	
Approach Delay (s)		27.4			0.0			32.3			13.0	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/11/2018

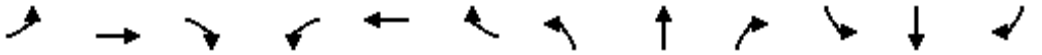
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1081	39	0	0	0	0	151	306	0	0	0
Future Volume (veh/h)	200	1081	39	0	0	0	0	151	306	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	211	1138	41				0	159	322			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	346	1683	61				0	267	540			
Arrive On Green	0.42	0.42	0.42				0.00	0.48	0.48			
Sat Flow, veh/h	723	3977	144				0	551	1115			
Grp Volume(v), veh/h	476	439	475				0	0	481			
Grp Sat Flow(s),veh/h/ln	1632	1543	1670				0	0	1666			
Q Serve(g_s), s	30.9	29.8	29.8				0.0	0.0	27.2			
Cycle Q Clear(g_c), s	30.9	29.8	29.8				0.0	0.0	27.2			
Prop In Lane	0.44		0.09				0.00		0.67			
Lane Grp Cap(c), veh/h	730	653	706				0	0	807			
V/C Ratio(X)	0.65	0.67	0.67				0.00	0.00	0.60			
Avail Cap(c_a), veh/h	730	653	706				0	0	807			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	30.6	30.2	30.2				0.0	0.0	24.3			
Incr Delay (d2), s/veh	4.5	5.5	5.1				0.0	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.8	13.7	14.7				0.0	0.0	13.1			
LnGrp Delay(d),s/veh	35.0	35.7	35.3				0.0	0.0	27.5			
LnGrp LOS	D	D	D						C			
Approach Vol, veh/h		1390						481				
Approach Delay, s/veh		35.3						27.5				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				69.0		61.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				63.0		55.0		
Max Q Clear Time (g_c+I1), s				29.2		32.9		
Green Ext Time (p_c), s				3.0		8.0		

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1324	63	0	0	0	0	0	0	1342	557	0
Future Volume (veh/h)	0	1324	63	0	0	0	0	0	0	1342	557	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1394	66							1413	586	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2112	100							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5920	269							4503	1676	0
Grp Volume(v), veh/h	0	1060	400							1413	586	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	30.4	30.5							37.5	42.4	0.0
Cycle Q Clear(g_c), s	0.0	30.4	30.5							37.5	42.4	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.66	0.66							0.55	0.66	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.72	0.72							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	49.2	49.2							40.6	42.6	0.0
Incr Delay (d2), s/veh	0.0	1.5	4.0							0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	14.5							15.6	19.8	0.0
LnGrp Delay(d),s/veh	0.0	50.7	53.3							40.7	43.0	0.0
LnGrp LOS		D	D							D	D	
Approach Vol, veh/h		1460									1999	
Approach Delay, s/veh		51.4									41.4	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		32.5		44.4				
Green Ext Time (p_c), s		6.6		8.9				

Intersection Summary	
HCM 2010 Ctrl Delay	45.6
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/11/2018

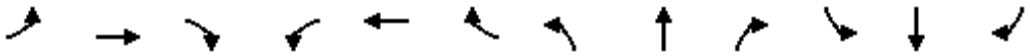
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1555	76	0	0	0	0	474	336	23	413	0
Future Volume (veh/h)	88	1555	76	0	0	0	0	474	336	23	413	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	93	1637	0				0	499	354	24	435	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	119	2239	0				0	683	581	146	683	0
Arrive On Green	0.50	0.50	0.00				0.00	0.41	0.41	0.82	0.82	0.00
Sat Flow, veh/h	239	4628	0				0	1676	1425	580	1676	0
Grp Volume(v), veh/h	649	1081	0				0	499	354	24	435	0
Grp Sat Flow(s),veh/h/ln	1665	1526	0				0	1676	1425	580	1676	0
Q Serve(g_s), s	41.5	35.7	0.0				0.0	32.6	25.5	4.0	12.9	0.0
Cycle Q Clear(g_c), s	41.5	35.7	0.0				0.0	32.6	25.5	36.7	12.9	0.0
Prop In Lane	0.14		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	832	1526	0				0	683	581	146	683	0
V/C Ratio(X)	0.78	0.71	0.00				0.00	0.73	0.61	0.16	0.64	0.00
Avail Cap(c_a), veh/h	832	1526	0				0	683	581	146	683	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.6	25.2	0.0				0.0	32.5	30.3	22.7	8.3	0.0
Incr Delay (d2), s/veh	7.1	2.8	0.0				0.0	6.7	4.7	0.4	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.6	15.6	0.0				0.0	16.4	10.8	0.7	5.9	0.0
LnGrp Delay(d),s/veh	33.7	28.0	0.0				0.0	39.2	35.0	23.1	10.1	0.0
LnGrp LOS	C	C						D	D	C	B	
Approach Vol, veh/h		1730						853			459	
Approach Delay, s/veh		30.1						37.5			10.8	
Approach LOS		C						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				59.0		71.0		59.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				53.0		65.0		53.0
Max Q Clear Time (g_c+I1), s				34.6		43.5		38.7
Green Ext Time (p_c), s				3.5		11.2		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1187	395	0	0	0	0	960	91	171	411	0
Future Volume (vph)	332	1187	395	0	0	0	0	960	91	171	411	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		4209						4473			3109	
Flt Permitted		0.99						1.00			0.52	
Satd. Flow (perm)		4209						4473			1637	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	349	1249	416	0	0	0	0	1011	96	180	433	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1978	0	0	0	0	0	1099	0	0	613	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		62.7						39.7			54.7	
Effective Green, g (s)		62.7						39.7			54.7	
Actuated g/C Ratio		0.48						0.31			0.42	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2030						1365			813	
v/s Ratio Prot								c0.25			c0.06	
v/s Ratio Perm		0.47									0.25	
v/c Ratio		0.97						0.80			1.06dl	
Uniform Delay, d1		32.9						41.6			31.9	
Progression Factor		0.74						1.00			1.90	
Incremental Delay, d2		11.0						5.1			0.6	
Delay (s)		35.4						46.7			61.3	
Level of Service		D						D			E	
Approach Delay (s)		35.4			0.0			46.7			61.3	
Approach LOS		D			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1093	356	0	0	0	0	0	0	154	794	0
Future Volume (veh/h)	0	1093	356	0	0	0	0	0	0	154	794	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1151	375							162	836	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	1588	517							242	1086	0
Arrive On Green	0.00	0.15	0.15							0.14	0.14	0.00
Sat Flow, veh/h	0	3534	1103							470	2551	0
Grp Volume(v), veh/h	0	1027	499							516	482	0
Grp Sat Flow(s),veh/h/ln	0	1511	1466							1510	1435	0
Q Serve(g_s), s	0.0	42.1	42.1							42.3	42.0	0.0
Cycle Q Clear(g_c), s	0.0	42.1	42.1							42.8	42.0	0.0
Prop In Lane	0.00		0.75							0.31		0.00
Lane Grp Cap(c), veh/h	0	1418	688							699	629	0
V/C Ratio(X)	0.00	0.72	0.72							0.74	0.77	0.00
Avail Cap(c_a), veh/h	0	1418	688							699	629	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.15	0.15							0.69	0.69	0.00
Uniform Delay (d), s/veh	0.0	46.9	46.9							49.5	49.2	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.0							4.8	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.7	17.3							18.9	17.8	0.0
LnGrp Delay(d),s/veh	0.0	47.4	48.0							54.3	55.3	0.0
LnGrp LOS		D	D							D	E	
Approach Vol, veh/h		1526									998	
Approach Delay, s/veh		47.6									54.8	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		67.0		63.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		61.0		57.0				
Max Q Clear Time (g_c+I1), s		44.1		44.8				
Green Ext Time (p_c), s		4.4		2.1				

Intersection Summary	
HCM 2010 Ctrl Delay	50.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	958	0	0	0	0	0	758	56	0	0	0
Future Volume (veh/h)	289	958	0	0	0	0	0	758	56	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	304	1008	0				0	798	59			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	552	1741	0				0	1558	115			
Arrive On Green	0.18	0.18	0.00				0.00	0.36	0.36			
Sat Flow, veh/h	926	3324	0				0	4458	317			
Grp Volume(v), veh/h	448	864	0				0	559	298			
Grp Sat Flow(s),veh/h/ln	1364	1375	0				0	1511	1604			
Q Serve(g_s), s	39.2	37.4	0.0				0.0	18.8	19.0			
Cycle Q Clear(g_c), s	39.2	37.4	0.0				0.0	18.8	19.0			
Prop In Lane	0.68		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	792	1502	0				0	1092	580			
V/C Ratio(X)	0.57	0.58	0.00				0.00	0.51	0.51			
Avail Cap(c_a), veh/h	792	1502	0				0	1092	580			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	40.3	39.5	0.0				0.0	32.5	32.5			
Incr Delay (d2), s/veh	1.8	1.0	0.0				0.0	1.7	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.2	14.5	0.0				0.0	8.1	8.9			
LnGrp Delay(d),s/veh	42.1	40.5	0.0				0.0	34.2	35.8			
LnGrp LOS	D	D						C	D			
Approach Vol, veh/h		1312						857				
Approach Delay, s/veh		41.0						34.8				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		53.0		77.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		47.0		71.0				
Max Q Clear Time (g_c+I1), s		21.0		41.2				
Green Ext Time (p_c), s		6.2		11.0				

Intersection Summary	
HCM 2010 Ctrl Delay	38.5
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

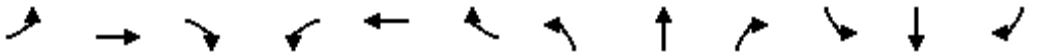
12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1101	124	475	572	0	0	0	0
Future Volume (vph)	0	0	0	0	1101	124	475	572	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	0.99				
Satd. Flow (prot)					4463		1435	2993				
Flt Permitted					1.00		0.95	0.99				
Satd. Flow (perm)					4463		1435	2993				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	1159	131	500	602	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	19	14	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1280	0	341	728	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					59.0		59.0	59.0				
Effective Green, g (s)					59.0		59.0	59.0				
Actuated g/C Ratio					0.45		0.45	0.45				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					2025		651	1358				
v/s Ratio Prot					c0.29							
v/s Ratio Perm							0.24	0.24				
v/c Ratio					0.63		0.52	0.54				
Uniform Delay, d1					27.2		25.4	25.6				
Progression Factor					1.00		0.65	0.67				
Incremental Delay, d2					1.5		2.6	1.3				
Delay (s)					28.7		19.0	18.4				
Level of Service					C		B	B				
Approach Delay (s)		0.0			28.7			18.6			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	232	1344	0	0	0	0	0	716	317
Future Volume (vph)	0	0	0	232	1344	0	0	0	0	0	716	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4499						3003	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4499						3003	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	244	1415	0	0	0	0	0	754	334
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	2	16
Lane Group Flow (vph)	0	0	0	0	1641	0	0	0	0	0	785	285
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					67.0						51.0	51.0
Effective Green, g (s)					67.0						51.0	51.0
Actuated g/C Ratio					0.52						0.39	0.39
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					2318						1178	503
v/s Ratio Prot											c0.26	
v/s Ratio Perm					0.36							0.22
v/c Ratio					0.71						0.67	0.57
Uniform Delay, d1					24.0						32.5	30.9
Progression Factor					1.24						1.00	1.00
Incremental Delay, d2					1.5						3.0	4.6
Delay (s)					31.3						35.5	35.4
Level of Service					C						D	D
Approach Delay (s)		0.0			31.3			0.0			35.5	
Approach LOS		A			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	86	1338	237	362	930	0	0	496	365
Future Volume (veh/h)	0	0	0	86	1338	237	362	930	0	0	496	365
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				91	1408	249	381	979	0	0	522	384
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				92	1510	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				230	3776	691	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				651	543	554	381	979	0	0	474	432
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				51.2	46.0	46.1	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				51.2	46.0	46.1	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				659	604	615	359	1601	0	0	449	408
V/C Ratio(X)				0.99	0.90	0.90	1.06	0.61	0.00	0.00	1.06	1.06
Avail Cap(c_a), veh/h				659	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.66	0.66	0.66	0.49	0.49	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.1	53.8	53.9	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				25.6	13.5	13.5	50.3	0.9	0.0	0.0	58.2	60.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				28.1	21.5	22.0	17.8	0.2	0.0	0.0	23.3	21.5
LnGrp Delay(d),s/veh				81.7	67.3	67.4	78.2	0.9	0.0	0.0	104.7	106.9
LnGrp LOS				F	E	E	F	A			F	F
Approach Vol, veh/h					1748			1360			906	
Approach Delay, s/veh					72.7			22.5			105.7	
Approach LOS					E			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		53.2		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.0			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	63.2
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	436	1295	334	320	242	0	0	0	0
Future Volume (veh/h)	0	0	0	436	1295	334	320	242	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				459	1363	352	337	255	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				617	1782	460	420	383	0			
Arrive On Green				0.22	0.22	0.22	0.38	0.38	0.00			
Sat Flow, veh/h				845	2631	680	1581	1660	0			
Grp Volume(v), veh/h				755	698	720	337	255	0			
Grp Sat Flow(s),veh/h/ln				1390	1375	1391	1581	1660	0			
Q Serve(g_s), s				66.8	61.6	63.1	26.5	16.5	0.0			
Cycle Q Clear(g_c), s				66.8	61.6	63.1	26.5	16.5	0.0			
Prop In Lane				0.61		0.49	1.00		0.00			
Lane Grp Cap(c), veh/h				986	931	942	420	383	0			
V/C Ratio(X)				0.77	0.75	0.76	0.80	0.67	0.00			
Avail Cap(c_a), veh/h				986	931	942	530	498	0			
HCM Platoon Ratio				0.33	0.33	0.33	1.67	1.67	1.00			
Upstream Filter(I)				0.10	0.10	0.10	0.61	0.61	0.00			
Uniform Delay (d), s/veh				42.2	40.2	40.8	38.9	35.8	0.0			
Incr Delay (d2), s/veh				0.6	0.6	0.6	3.9	1.0	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				25.9	23.7	24.5	12.0	7.7	0.0			
LnGrp Delay(d),s/veh				42.9	40.8	41.4	42.8	36.9	0.0			
LnGrp LOS				D	D	D	D	D				
Approach Vol, veh/h					2174			592				
Approach Delay, s/veh					41.7			40.3				
Approach LOS					D			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		94.0		36.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		79.0		39.0				
Max Q Clear Time (g_c+I1), s		68.8		28.5				
Green Ext Time (p_c), s		4.8		1.5				

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	671	944	266	36	962	1030
Future Volume (vph)	671	944	266	36	962	1030
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.96	0.85
Flt Protected	0.95	0.99	1.00		0.97	1.00
Satd. Flow (prot)	1449	3031	3128		3003	1297
Flt Permitted	0.95	0.99	1.00		0.97	1.00
Satd. Flow (perm)	1449	3031	3128		3003	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	706	994	280	38	1013	1084
RTOR Reduction (vph)	64	64	8	0	0	0
Lane Group Flow (vph)	487	1085	310	0	1436	661
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	41.5	41.5	10.8		57.0	57.0
Effective Green, g (s)	41.5	41.5	10.8		57.0	57.0
Actuated g/C Ratio	0.32	0.32	0.08		0.44	0.44
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	462	967	259		1316	568
v/s Ratio Prot			c0.10		0.48	
v/s Ratio Perm	0.34	0.36				c0.51
v/c Ratio	1.05	1.12	1.20		1.09	1.16
Uniform Delay, d1	44.2	44.2	59.6		36.5	36.5
Progression Factor	0.81	0.83	1.00		1.00	1.00
Incremental Delay, d2	49.0	64.4	119.5		53.6	91.8
Delay (s)	84.9	101.2	179.1		90.1	128.3
Level of Service	F	F	F		F	F
Approach Delay (s)		96.0	179.1		102.1	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	105.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	62	1825	98	106	215	0	0	208	68
Future Volume (veh/h)	0	0	0	62	1825	98	106	215	0	0	208	68
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				65	1921	103	112	226	0	0	219	72
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				79	2467	136	189	363	0	0	570	188
Arrive On Green				0.50	0.50	0.49	0.82	0.82	0.00	0.00	0.41	0.41
Sat Flow, veh/h				157	4935	273	364	888	0	0	1397	459
Grp Volume(v), veh/h				767	637	685	338	0	0	0	0	291
Grp Sat Flow(s),veh/h/ln				1855	1695	1815	1253	0	0	0	0	1856
Q Serve(g_s), s				42.3	36.1	36.4	10.7	0.0	0.0	0.0	0.0	13.2
Cycle Q Clear(g_c), s				42.3	36.1	36.4	23.9	0.0	0.0	0.0	0.0	13.2
Prop In Lane				0.08		0.15	0.33		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				927	848	907	551	0	0	0	0	758
V/C Ratio(X)				0.83	0.75	0.76	0.61	0.00	0.00	0.00	0.00	0.38
Avail Cap(c_a), veh/h				927	848	907	551	0	0	0	0	758
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.96	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				25.6	24.0	24.2	9.5	0.0	0.0	0.0	0.0	24.9
Incr Delay (d2), s/veh				8.4	6.1	5.8	4.8	0.0	0.0	0.0	0.0	1.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.7	18.2	19.6	7.1	0.0	0.0	0.0	0.0	7.1
LnGrp Delay(d),s/veh				33.9	30.1	30.0	14.3	0.0	0.0	0.0	0.0	26.4
LnGrp LOS				C	C	C	B					C
Approach Vol, veh/h					2089			338			291	
Approach Delay, s/veh					31.5			14.3			26.4	
Approach LOS					C			B			C	

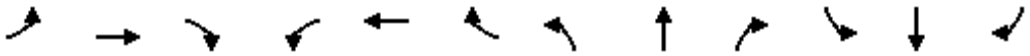
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		65.0		55.0				55.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		59.0		49.0				49.0
Max Q Clear Time (g_c+I1), s		44.3		25.9				15.2
Green Ext Time (p_c), s		2.1		1.2				0.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Synchro 2045 (Intersections)

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	309	1584	63	0	0	0	0	205	60	199	198	0
Future Volume (vph)	309	1584	63	0	0	0	0	205	60	199	198	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4686						1746			1757	
Flt Permitted		0.99						1.00			0.44	
Satd. Flow (perm)		4686						1746			788	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	325	1667	66	0	0	0	0	216	63	209	208	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	2055	0	0	0	0	0	268	0	0	417	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		44.7						28.0			43.0	
Effective Green, g (s)		44.7						28.0			43.0	
Actuated g/C Ratio		0.45						0.28			0.43	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2094						488			431	
v/s Ratio Prot								0.15			c0.09	
v/s Ratio Perm		0.44									c0.32	
v/c Ratio		0.98						0.55			0.97	
Uniform Delay, d1		27.2						30.6			27.8	
Progression Factor		1.00						1.00			0.89	
Incremental Delay, d2		15.7						4.4			33.5	
Delay (s)		42.9						35.0			58.1	
Level of Service		D						D			E	
Approach Delay (s)		42.9			0.0			35.0			58.1	
Approach LOS		D			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	1727	10	0	0	0	0	97	598	0	0	0
Future Volume (veh/h)	106	1727	10	0	0	0	0	97	598	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	112	1818	11				0	102	629			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	144	1925	12				0	111	684			
Arrive On Green	0.41	0.41	0.41				0.00	0.49	0.49			
Sat Flow, veh/h	268	4713	29				0	226	1392			
Grp Volume(v), veh/h	694	595	652				0	0	731			
Grp Sat Flow(s),veh/h/ln	1777	1543	1690				0	0	1617			
Q Serve(g_s), s	42.4	44.6	44.6				0.0	0.0	50.3			
Cycle Q Clear(g_c), s	45.5	44.6	44.6				0.0	0.0	50.3			
Prop In Lane	0.16		0.02				0.00		0.86			
Lane Grp Cap(c), veh/h	761	630	690				0	0	795			
V/C Ratio(X)	0.91	0.94	0.94				0.00	0.00	0.92			
Avail Cap(c_a), veh/h	761	630	690				0	0	795			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	34.4	34.2	34.2				0.0	0.0	28.3			
Incr Delay (d2), s/veh	17.2	24.5	23.1				0.0	0.0	17.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	25.8	23.1	25.1				0.0	0.0	26.2			
LnGrp Delay(d),s/veh	51.6	58.7	57.3				0.0	0.0	45.7			
LnGrp LOS	D	E	E						D			
Approach Vol, veh/h		1941						731				
Approach Delay, s/veh		55.7						45.7				
Approach LOS		E						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				65.0		55.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				59.0		49.0		
Max Q Clear Time (g_c+I1), s				52.3		47.5		
Green Ext Time (p_c), s				2.6		1.3		

Intersection Summary	
HCM 2010 Ctrl Delay	53.0
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1942	623	0
Future Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1942	623	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	2399	48							2044	656	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2507	50							2281	782	0
Arrive On Green	0.00	0.14	0.14							0.15	0.15	0.00
Sat Flow, veh/h	0	6099	117							4503	1676	0
Grp Volume(v), veh/h	0	1769	678							2044	656	0
Grp Sat Flow(s),veh/h/ln	0	1442	1656							1501	1676	0
Q Serve(g_s), s	0.0	48.7	48.8							54.2	45.6	0.0
Cycle Q Clear(g_c), s	0.0	48.7	48.8							54.2	45.6	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1849	708							2281	782	0
V/C Ratio(X)	0.00	0.96	0.96							0.90	0.84	0.00
Avail Cap(c_a), veh/h	0	1849	708							2281	782	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.24	0.24							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	50.4	50.5							50.0	46.4	0.0
Incr Delay (d2), s/veh	0.0	4.2	9.2							0.6	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.2	24.2							22.7	21.4	0.0
LnGrp Delay(d),s/veh	0.0	54.7	59.7							50.6	47.4	0.0
LnGrp LOS		D	E							D	D	
Approach Vol, veh/h		2447									2700	
Approach Delay, s/veh		56.0									49.8	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		58.0		62.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 51		56.0				
Max Q Clear Time (g_c+I1), s		50.8		56.2				
Green Ext Time (p_c), s		0.5		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	52.8
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/11/2018

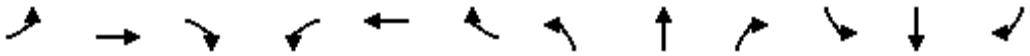
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	2514	205	0	0	0	0	305	389	10	386	0
Future Volume (veh/h)	43	2514	205	0	0	0	0	305	389	10	386	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	45	2646	0				0	321	409	11	406	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	45	2829	0				0	489	416	141	489	0
Arrive On Green	0.61	0.61	0.00				0.00	0.29	0.29	0.39	0.39	0.00
Sat Flow, veh/h	74	4800	0				0	1676	1425	650	1676	0
Grp Volume(v), veh/h	1013	1678	0				0	321	409	11	406	0
Grp Sat Flow(s),veh/h/ln	1673	1526	0				0	1676	1425	650	1676	0
Q Serve(g_s), s	72.1	57.5	0.0				0.0	20.1	34.2	1.7	26.2	0.0
Cycle Q Clear(g_c), s	72.1	57.5	0.0				0.0	20.1	34.2	21.9	26.2	0.0
Prop In Lane	0.04		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1018	1856	0				0	489	416	141	489	0
V/C Ratio(X)	1.00	0.90	0.00				0.00	0.66	0.98	0.08	0.83	0.00
Avail Cap(c_a), veh/h	1018	1856	0				0	489	416	141	489	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.3	20.5	0.0				0.0	37.2	42.2	41.3	34.0	0.0
Incr Delay (d2), s/veh	27.1	7.8	0.0				0.0	6.7	40.4	0.2	11.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.6	26.0	0.0				0.0	10.2	18.1	0.3	13.6	0.0
LnGrp Delay(d),s/veh	50.4	28.2	0.0				0.0	44.0	82.6	41.5	45.3	0.0
LnGrp LOS	D	C						D	F	D	D	
Approach Vol, veh/h		2691						730			417	
Approach Delay, s/veh		36.6						65.6			45.2	
Approach LOS		D						E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				41.0		79.0		41.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				35.0		73.0		35.0
Max Q Clear Time (g_c+I1), s				36.2		74.1		28.2
Green Ext Time (p_c), s				0.0		0.0		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Future Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4274						4475			3097	
Flt Permitted		0.99						1.00			0.57	
Satd. Flow (perm)		4274						4475			1799	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	518	2216	333	0	0	0	0	1216	111	319	535	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3054	0	0	0	0	0	1318	0	0	854	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		61.7						30.7			45.7	
Effective Green, g (s)		61.7						30.7			45.7	
Actuated g/C Ratio		0.51						0.26			0.38	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2197						1144			804	
v/s Ratio Prot								c0.29			c0.10	
v/s Ratio Perm		0.71									0.31	
v/c Ratio		1.39						1.15			1.84dl	
Uniform Delay, d1		29.1						44.6			37.1	
Progression Factor		0.88						1.00			0.28	
Incremental Delay, d2		175.9						78.8			38.0	
Delay (s)		201.6						123.5			48.5	
Level of Service		F						F			D	
Approach Delay (s)		201.6			0.0			123.5			48.5	
Approach LOS		F			A			F			D	

Intersection Summary			
HCM 2000 Control Delay	157.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	132.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1908	605	0	0	0	0	0	0	291	652	0
Future Volume (veh/h)	0	1908	605	0	0	0	0	0	0	291	652	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	2008	637							306	686	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2081	619							301	595	0
Arrive On Green	0.00	0.20	0.20							0.10	0.10	0.00
Sat Flow, veh/h	0	3618	1031							843	2059	0
Grp Volume(v), veh/h	0	1732	913							505	487	0
Grp Sat Flow(s),veh/h/ln	0	1511	1478							1391	1435	0
Q Serve(g_s), s	0.0	68.0	72.0							36.0	36.0	0.0
Cycle Q Clear(g_c), s	0.0	68.0	72.0							36.0	36.0	0.0
Prop In Lane	0.00		0.70							0.61		0.00
Lane Grp Cap(c), veh/h	0	1813	887							465	431	0
V/C Ratio(X)	0.00	0.96	1.03							1.08	1.13	0.00
Avail Cap(c_a), veh/h	0	1813	887							465	431	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.09	0.09							0.79	0.79	0.00
Uniform Delay (d), s/veh	0.0	46.5	48.1							55.9	54.1	0.0
Incr Delay (d2), s/veh	0.0	1.8	18.0							62.3	80.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	28.9	33.9							23.5	23.9	0.0
LnGrp Delay(d),s/veh	0.0	48.3	66.2							118.2	134.1	0.0
LnGrp LOS		D	F							F	F	
Approach Vol, veh/h		2645									992	
Approach Delay, s/veh		54.5									126.0	
Approach LOS		D									F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		78.0		42.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		72.0		36.0				
Max Q Clear Time (g_c+I1), s		74.0		38.0				
Green Ext Time (p_c), s		0.0		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	74.0
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	1928	0	0	0	0	0	770	90	0	0	0
Future Volume (veh/h)	271	1928	0	0	0	0	0	770	90	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	285	2029	0				0	811	95			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	353	2307	0				0	1167	136			
Arrive On Green	0.20	0.20	0.00				0.00	0.28	0.28			
Sat Flow, veh/h	507	3876	0				0	4267	480			
Grp Volume(v), veh/h	842	1472	0				0	594	312			
Grp Sat Flow(s),veh/h/ln	1498	1375	0				0	1511	1576			
Q Serve(g_s), s	65.9	62.2	0.0				0.0	21.0	21.2			
Cycle Q Clear(g_c), s	65.9	62.2	0.0				0.0	21.0	21.2			
Prop In Lane	0.34		0.00				0.00		0.30			
Lane Grp Cap(c), veh/h	964	1696	0				0	856	446			
V/C Ratio(X)	0.87	0.87	0.00				0.00	0.69	0.70			
Avail Cap(c_a), veh/h	964	1696	0				0	856	446			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	44.6	43.1	0.0				0.0	38.4	38.4			
Incr Delay (d2), s/veh	1.1	0.6	0.0				0.0	4.6	8.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	27.7	23.8	0.0				0.0	9.3	10.3			
LnGrp Delay(d),s/veh	45.7	43.7	0.0				0.0	43.0	47.2			
LnGrp LOS	D	D						D	D			
Approach Vol, veh/h		2314						906				
Approach Delay, s/veh		44.4						44.4				
Approach LOS		D						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		40.0		80.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		34.0		74.0				
Max Q Clear Time (g_c+I1), s		23.2		67.9				
Green Ext Time (p_c), s		4.4		5.5				

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	712	80	362	679	0	0	0	0
Future Volume (vph)	0	0	0	0	712	80	362	679	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4464		1435	3014				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4464		1435	3014				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	749	84	381	715	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	36	13	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	822	0	307	740	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					45.0		63.0	63.0				
Effective Green, g (s)					45.0		63.0	63.0				
Actuated g/C Ratio					0.38		0.52	0.52				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					1674		753	1582				
v/s Ratio Prot					c0.18							
v/s Ratio Perm							0.21	0.25				
v/c Ratio					0.49		0.41	0.47				
Uniform Delay, d1					28.7		17.2	17.9				
Progression Factor					1.00		0.53	0.58				
Incremental Delay, d2					1.0		1.1	0.6				
Delay (s)					29.8		10.2	11.0				
Level of Service					C		B	B				
Approach Delay (s)		0.0			29.8			10.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	149	925	0	0	0	0	0	794	395
Future Volume (vph)	0	0	0	149	925	0	0	0	0	0	794	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4501						3000	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4501						3000	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	157	974	0	0	0	0	0	836	416
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	3	19
Lane Group Flow (vph)	0	0	0	0	1113	0	0	0	0	0	875	355
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					47.0						61.0	61.0
Effective Green, g (s)					47.0						61.0	61.0
Actuated g/C Ratio					0.39						0.51	0.51
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					1762						1525	652
v/s Ratio Prot											c0.29	
v/s Ratio Perm					0.25							0.28
v/c Ratio					0.63						0.57	0.54
Uniform Delay, d1					29.5						20.5	20.1
Progression Factor					0.41						1.00	1.00
Incremental Delay, d2					1.6						1.6	3.3
Delay (s)					13.6						22.1	23.3
Level of Service					B						C	C
Approach Delay (s)		0.0			13.6			0.0			22.4	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Future Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				80	1054	256	348	1385	0	0	774	218
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				168	2338	590	363	1823	0	0	831	234
Arrive On Green				0.22	0.22	0.22	0.37	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				253	3521	888	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				522	435	433	348	1385	0	0	502	490
Grp Sat Flow(s),veh/h/ln				1648	1511	1503	1581	1577	0	0	1577	1539
Q Serve(g_s), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Cycle Q Clear(g_c), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				1094	1003	998	363	1823	0	0	539	526
V/C Ratio(X)				0.48	0.43	0.43	0.96	0.76	0.00	0.00	0.93	0.93
Avail Cap(c_a), veh/h				1094	1003	998	372	1823	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.7	27.4	27.4	35.0	0.0	0.0	0.0	38.1	38.1
Incr Delay (d2), s/veh				1.1	1.0	1.0	6.7	0.3	0.0	0.0	25.1	25.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	12.8	12.8	11.7	0.1	0.0	0.0	19.8	19.4
LnGrp Delay(d),s/veh				29.8	28.4	28.4	41.7	0.3	0.0	0.0	63.2	63.6
LnGrp LOS				C	C	C	D	A			E	E
Approach Vol, veh/h					1390			1733			992	
Approach Delay, s/veh					28.9			8.6			63.4	
Approach LOS					C			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		87.0		75.3			28.3	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		35.1		2.0			22.3	38.9
Green Ext Time (p_c), s		1.9		4.9			0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	396	1054	89	223	125	0	0	0	0
Future Volume (veh/h)	0	0	0	396	1054	89	223	125	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				417	1109	94	235	132	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				811	2098	179	332	286	0			
Arrive On Green				0.24	0.24	0.24	0.06	0.06	0.00			
Sat Flow, veh/h				1041	2883	245	1581	1660	0			
Grp Volume(v), veh/h				532	526	562	235	132	0			
Grp Sat Flow(s),veh/h/ln				1328	1375	1467	1581	1660	0			
Q Serve(g_s), s				42.1	40.0	40.0	17.7	9.2	0.0			
Cycle Q Clear(g_c), s				42.1	40.0	40.0	17.7	9.2	0.0			
Prop In Lane				0.78		0.17	1.00		0.00			
Lane Grp Cap(c), veh/h				1020	1001	1068	332	286	0			
V/C Ratio(X)				0.52	0.53	0.53	0.71	0.46	0.00			
Avail Cap(c_a), veh/h				1020	1001	1068	561	526	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.26	0.26	0.26	0.70	0.70	0.00			
Uniform Delay (d), s/veh				28.4	27.6	27.6	55.2	51.2	0.0			
Incr Delay (d2), s/veh				0.5	0.5	0.5	1.5	0.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				15.6	15.4	16.4	7.9	4.3	0.0			
LnGrp Delay(d),s/veh				28.9	28.1	28.1	56.6	51.8	0.0			
LnGrp LOS				C	C	C	E	D				
Approach Vol, veh/h					1620			367				
Approach Delay, s/veh					28.4			54.9				
Approach LOS					C			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		93.3		26.7				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		70.0		38.0				
Max Q Clear Time (g_c+I1), s		44.1		19.7				
Green Ext Time (p_c), s		4.2		1.0				

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	735	542	285	15	1545	544
Future Volume (vph)	735	542	285	15	1545	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.99	0.85
Flt Protected	0.95	0.98	1.00		0.95	1.00
Satd. Flow (prot)	1449	2996	3161		3087	1297
Flt Permitted	0.95	0.98	1.00		0.95	1.00
Satd. Flow (perm)	1449	2996	3161		3087	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	774	571	300	16	1626	573
RTOR Reduction (vph)	76	76	3	0	0	0
Lane Group Flow (vph)	365	828	313	0	1683	516
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	30.5	30.5	9.8		59.0	59.0
Effective Green, g (s)	30.5	30.5	9.8		59.0	59.0
Actuated g/C Ratio	0.25	0.25	0.08		0.49	0.49
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	368	761	258		1517	637
v/s Ratio Prot			c0.10		c0.55	
v/s Ratio Perm	0.25	0.28				0.40
v/c Ratio	0.99	1.09	1.21		1.11	0.81
Uniform Delay, d1	44.6	44.8	55.1		30.5	25.8
Progression Factor	0.96	0.96	1.00		1.00	1.00
Incremental Delay, d2	41.8	57.3	126.5		59.2	7.7
Delay (s)	84.5	100.2	181.6		89.7	33.5
Level of Service	F	F	F		F	C
Approach Delay (s)		95.0	181.6		76.5	
Approach LOS		F	F		E	

Intersection Summary			
HCM 2000 Control Delay	91.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/11/2018

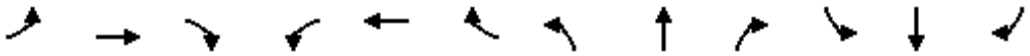
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	63	960	67	88	426	0	0	334	129
Future Volume (veh/h)	0	0	0	63	960	67	88	426	0	0	334	129
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				66	1011	71	93	448	0	0	352	136
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				93	1509	109	155	721	0	0	759	293
Arrive On Green				0.32	0.32	0.31	1.00	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				289	4715	342	197	1265	0	0	1332	515
Grp Volume(v), veh/h				422	352	375	541	0	0	0	0	488
Grp Sat Flow(s),veh/h/ln				1848	1695	1802	1462	0	0	0	0	1846
Q Serve(g_s), s				20.1	17.8	17.9	8.9	0.0	0.0	0.0	0.0	15.4
Cycle Q Clear(g_c), s				20.1	17.8	17.9	24.3	0.0	0.0	0.0	0.0	15.4
Prop In Lane				0.16		0.19	0.17		0.00	0.00		0.28
Lane Grp Cap(c), veh/h				591	542	577	876	0	0	0	0	1052
V/C Ratio(X)				0.71	0.65	0.65	0.62	0.00	0.00	0.00	0.00	0.46
Avail Cap(c_a), veh/h				591	542	577	876	0	0	0	0	1052
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.81	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				30.0	29.2	29.3	0.8	0.0	0.0	0.0	0.0	12.6
Incr Delay (d2), s/veh				7.2	5.9	5.6	2.6	0.0	0.0	0.0	0.0	1.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				11.4	9.2	9.7	3.8	0.0	0.0	0.0	0.0	8.3
LnGrp Delay(d),s/veh				37.1	35.1	34.9	3.4	0.0	0.0	0.0	0.0	14.0
LnGrp LOS				D	D	C	A					B
Approach Vol, veh/h					1148			541			488	
Approach Delay, s/veh					35.8			3.4			14.0	
Approach LOS					D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		37.0		63.0				63.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		31.0		57.0				57.0
Max Q Clear Time (g_c+I1), s		22.1		26.3				17.4
Green Ext Time (p_c), s		0.9		2.1				1.7

Intersection Summary		
HCM 2010 Ctrl Delay		22.8
HCM 2010 LOS		C

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	1406	31	0	0	0	0	154	44	157	190	0
Future Volume (vph)	233	1406	31	0	0	0	0	154	44	157	190	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4700						1747			1761	
Flt Permitted		0.99						1.00			0.58	
Satd. Flow (perm)		4700						1747			1045	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	245	1480	33	0	0	0	0	162	46	165	200	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1756	0	0	0	0	0	200	0	0	365	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		54.7						38.0			53.0	
Effective Green, g (s)		54.7						38.0			53.0	
Actuated g/C Ratio		0.46						0.32			0.44	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2142						553			518	
v/s Ratio Prot								0.11			c0.06	
v/s Ratio Perm		0.37									c0.25	
v/c Ratio		0.82						0.36			0.70	
Uniform Delay, d1		28.4						31.6			27.2	
Progression Factor		1.00						1.00			0.39	
Incremental Delay, d2		3.7						1.8			6.4	
Delay (s)		32.0						33.5			17.0	
Level of Service		C						C			B	
Approach Delay (s)		32.0			0.0			33.5			17.0	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	1316	48	0	0	0	0	183	370	0	0	0
Future Volume (veh/h)	243	1316	48	0	0	0	0	183	370	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	256	1385	51				0	193	389			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	344	1683	62				0	268	540			
Arrive On Green	0.42	0.42	0.42				0.00	0.48	0.48			
Sat Flow, veh/h	720	3978	147				0	553	1114			
Grp Volume(v), veh/h	581	534	578				0	0	582			
Grp Sat Flow(s),veh/h/ln	1633	1543	1669				0	0	1666			
Q Serve(g_s), s	41.4	39.7	39.7				0.0	0.0	36.0			
Cycle Q Clear(g_c), s	41.4	39.7	39.7				0.0	0.0	36.0			
Prop In Lane	0.44		0.09				0.00		0.67			
Lane Grp Cap(c), veh/h	731	653	706				0	0	807			
V/C Ratio(X)	0.80	0.82	0.82				0.00	0.00	0.72			
Avail Cap(c_a), veh/h	731	653	706				0	0	807			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	33.6	33.1	33.1				0.0	0.0	26.5			
Incr Delay (d2), s/veh	8.7	10.9	10.2				0.0	0.0	5.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	20.3	18.9	20.3				0.0	0.0	17.7			
LnGrp Delay(d),s/veh	42.3	44.0	43.3				0.0	0.0	32.0			
LnGrp LOS	D	D	D						C			
Approach Vol, veh/h		1692						582				
Approach Delay, s/veh		43.2						32.0				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				69.0		61.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				63.0		55.0		
Max Q Clear Time (g_c+I1), s				38.0		43.4		
Green Ext Time (p_c), s				3.7		7.0		

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1573	654	0
Future Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1573	654	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1694	81							1656	688	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2111	101							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5917	272							4503	1676	0
Grp Volume(v), veh/h	0	1289	486							1656	688	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	37.7	37.7							44.9	50.9	0.0
Cycle Q Clear(g_c), s	0.0	37.7	37.7							44.9	50.9	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.80	0.80							0.65	0.77	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.52	0.52							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.4							43.7	46.1	0.0
Incr Delay (d2), s/veh	0.0	2.3	5.9							0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.4	18.0							18.7	23.8	0.0
LnGrp Delay(d),s/veh	0.0	54.7	58.3							43.8	46.8	0.0
LnGrp LOS		D	E							D	D	
Approach Vol, veh/h		1775									2344	
Approach Delay, s/veh		55.7									44.7	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		39.7		52.9				
Green Ext Time (p_c), s		5.4		9.0				

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/11/2018

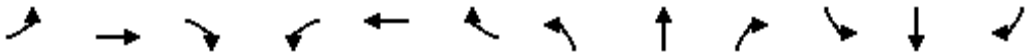
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1857	90	0	0	0	0	553	392	27	484	0
Future Volume (veh/h)	105	1857	90	0	0	0	0	553	392	27	484	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	111	1955	0				0	582	413	28	509	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	119	2239	0				0	683	581	102	683	0
Arrive On Green	0.50	0.50	0.00				0.00	0.41	0.41	0.82	0.82	0.00
Sat Flow, veh/h	238	4628	0				0	1676	1425	507	1676	0
Grp Volume(v), veh/h	775	1291	0				0	582	413	28	509	0
Grp Sat Flow(s),veh/h/ln	1665	1526	0				0	1676	1425	507	1676	0
Q Serve(g_s), s	56.6	47.7	0.0				0.0	40.9	31.4	6.6	18.6	0.0
Cycle Q Clear(g_c), s	56.6	47.7	0.0				0.0	40.9	31.4	47.5	18.6	0.0
Prop In Lane	0.14		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	832	1526	0				0	683	581	102	683	0
V/C Ratio(X)	0.93	0.85	0.00				0.00	0.85	0.71	0.27	0.74	0.00
Avail Cap(c_a), veh/h	832	1526	0				0	683	581	102	683	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	28.2	0.0				0.0	34.9	32.1	30.2	8.8	0.0
Incr Delay (d2), s/veh	18.4	6.0	0.0				0.0	12.7	7.2	1.1	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.1	21.2	0.0				0.0	21.3	13.6	0.9	9.0	0.0
LnGrp Delay(d),s/veh	48.8	34.1	0.0				0.0	47.6	39.3	31.3	13.1	0.0
LnGrp LOS	D	C						D	D	C	B	
Approach Vol, veh/h		2066						995			537	
Approach Delay, s/veh		39.6						44.2			14.0	
Approach LOS		D						D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				59.0		71.0		59.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				53.0		65.0		53.0
Max Q Clear Time (g_c+I1), s				42.9		58.6		49.5
Green Ext Time (p_c), s				3.3		5.2		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Future Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		4209						4473			3109	
Flt Permitted		0.99						1.00			0.53	
Satd. Flow (perm)		4209						4473			1666	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	416	1486	494	0	0	0	0	1179	112	211	507	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	2360	0	0	0	0	0	1283	0	0	718	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		62.7						39.7			54.7	
Effective Green, g (s)		62.7						39.7			54.7	
Actuated g/C Ratio		0.48						0.31			0.42	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2030						1365			823	
v/s Ratio Prot								c0.29			c0.07	
v/s Ratio Perm		0.56									0.29	
v/c Ratio		1.16						0.94			1.33dl	
Uniform Delay, d1		33.6						44.0			34.5	
Progression Factor		0.90						1.00			1.91	
Incremental Delay, d2		75.8						13.7			1.3	
Delay (s)		106.1						57.6			67.0	
Level of Service		F						E			E	
Approach Delay (s)		106.1			0.0			57.6			67.0	
Approach LOS		F			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	85.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1296	422	0	0	0	0	0	0	180	932	0
Future Volume (veh/h)	0	1296	422	0	0	0	0	0	0	180	932	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1364	444							189	981	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	1591	515							243	1085	0
Arrive On Green	0.00	0.15	0.15							0.14	0.14	0.00
Sat Flow, veh/h	0	3540	1097							471	2550	0
Grp Volume(v), veh/h	0	1215	593							606	564	0
Grp Sat Flow(s),veh/h/ln	0	1511	1467							1510	1435	0
Q Serve(g_s), s	0.0	50.9	51.3							51.4	50.2	0.0
Cycle Q Clear(g_c), s	0.0	50.9	51.3							51.4	50.2	0.0
Prop In Lane	0.00		0.75							0.31		0.00
Lane Grp Cap(c), veh/h	0	1418	688							698	629	0
V/C Ratio(X)	0.00	0.86	0.86							0.87	0.90	0.00
Avail Cap(c_a), veh/h	0	1418	688							698	629	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.09	0.09							0.53	0.53	0.00
Uniform Delay (d), s/veh	0.0	50.7	50.8							53.2	52.7	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.4							7.9	10.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.5	21.2							23.1	21.9	0.0
LnGrp Delay(d),s/veh	0.0	51.4	52.3							61.1	63.4	0.0
LnGrp LOS		D	D							E	E	
Approach Vol, veh/h		1808									1170	
Approach Delay, s/veh		51.7									62.2	
Approach LOS		D									E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		67.0		63.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		61.0		57.0				
Max Q Clear Time (g_c+I1), s		53.3		53.4				
Green Ext Time (p_c), s		3.7		1.3				

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/11/2018

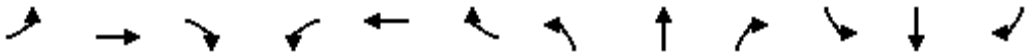
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	342	1134	0	0	0	0	0	884	66	0	0	0
Future Volume (veh/h)	342	1134	0	0	0	0	0	884	66	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	360	1194	0				0	931	69			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	553	1741	0				0	1557	115			
Arrive On Green	0.18	0.18	0.00				0.00	0.36	0.36			
Sat Flow, veh/h	927	3323	0				0	4457	318			
Grp Volume(v), veh/h	530	1024	0				0	652	348			
Grp Sat Flow(s),veh/h/ln	1364	1375	0				0	1511	1604			
Q Serve(g_s), s	47.5	45.3	0.0				0.0	22.9	23.0			
Cycle Q Clear(g_c), s	47.5	45.3	0.0				0.0	22.9	23.0			
Prop In Lane	0.68		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	792	1502	0				0	1092	580			
V/C Ratio(X)	0.67	0.68	0.00				0.00	0.60	0.60			
Avail Cap(c_a), veh/h	792	1502	0				0	1092	580			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.37	0.37	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	43.6	42.7	0.0				0.0	33.8	33.8			
Incr Delay (d2), s/veh	1.7	0.9	0.0				0.0	2.4	4.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	18.3	17.5	0.0				0.0	9.9	10.9			
LnGrp Delay(d),s/veh	45.3	43.7	0.0				0.0	36.2	38.4			
LnGrp LOS	D	D						D	D			
Approach Vol, veh/h		1554						1000				
Approach Delay, s/veh		44.2						37.0				
Approach LOS		D						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		53.0		77.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		47.0		71.0				
Max Q Clear Time (g_c+I1), s		25.0		49.5				
Green Ext Time (p_c), s		7.1		11.6				

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1290	145	556	670	0	0	0	0
Future Volume (vph)	0	0	0	0	1290	145	556	670	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	0.99				
Satd. Flow (prot)					4463		1435	2993				
Flt Permitted					1.00		0.95	0.99				
Satd. Flow (perm)					4463		1435	2993				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	1358	153	585	705	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	14	14	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1501	0	407	855	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					59.0		59.0	59.0				
Effective Green, g (s)					59.0		59.0	59.0				
Actuated g/C Ratio					0.45		0.45	0.45				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					2025		651	1358				
v/s Ratio Prot					c0.34							
v/s Ratio Perm							0.28	0.29				
v/c Ratio					0.74		0.63	0.63				
Uniform Delay, d1					29.2		27.1	27.1				
Progression Factor					1.00		0.70	0.70				
Incremental Delay, d2					2.5		3.6	1.8				
Delay (s)					31.7		22.5	20.8				
Level of Service					C		C	C				
Approach Delay (s)		0.0			31.7			21.4			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	272	1574	0	0	0	0	0	840	372
Future Volume (vph)	0	0	0	272	1574	0	0	0	0	0	840	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4499						3002	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4499						3002	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	286	1657	0	0	0	0	0	884	392
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	2	15
Lane Group Flow (vph)	0	0	0	0	1925	0	0	0	0	0	921	338
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					67.0						51.0	51.0
Effective Green, g (s)					67.0						51.0	51.0
Actuated g/C Ratio					0.52						0.39	0.39
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					2318						1177	503
v/s Ratio Prot											c0.31	
v/s Ratio Perm					0.43							0.26
v/c Ratio					0.83						0.78	0.67
Uniform Delay, d1					26.7						34.6	32.6
Progression Factor					1.17						1.00	1.00
Incremental Delay, d2					2.5						5.2	7.0
Delay (s)					33.7						39.8	39.6
Level of Service					C						D	D
Approach Delay (s)		0.0			33.7			0.0			39.8	
Approach LOS		A			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Future Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				105	1651	293	447	1147	0	0	613	451
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				91	1512	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				227	3781	690	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				761	634	654	447	1147	0	0	557	507
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				660	604	615	359	1601	0	0	449	408
V/C Ratio(X)				1.15	1.05	1.06	1.24	0.72	0.00	0.00	1.24	1.24
Avail Cap(c_a), veh/h				660	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.49	0.49	0.49	0.23	0.23	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.4	56.4	56.4	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				78.3	39.5	43.5	115.2	0.6	0.0	0.0	125.9	128.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				38.1	28.4	29.6	24.3	0.1	0.0	0.0	31.8	29.2
LnGrp Delay(d),s/veh				134.7	95.9	99.9	143.1	0.6	0.0	0.0	172.4	174.6
LnGrp LOS				F	F	F	F	A			F	F
Approach Vol, veh/h					2049			1594			1064	
Approach Delay, s/veh					111.6			40.6			173.5	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		54.0		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.7			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	101.5
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	511	1518	392	375	283	0	0	0	0
Future Volume (veh/h)	0	0	0	511	1518	392	375	283	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				538	1598	413	395	298	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				575	1707	438	474	440	0			
Arrive On Green				0.21	0.21	0.21	0.44	0.44	0.00			
Sat Flow, veh/h				825	2655	682	1581	1660	0			
Grp Volume(v), veh/h				911	796	842	395	298	0			
Grp Sat Flow(s),veh/h/ln				1397	1375	1390	1581	1660	0			
Q Serve(g_s), s				83.6	73.3	77.6	31.1	18.6	0.0			
Cycle Q Clear(g_c), s				83.6	73.3	77.6	31.1	18.6	0.0			
Prop In Lane				0.59		0.49	1.00		0.00			
Lane Grp Cap(c), veh/h				942	884	894	474	440	0			
V/C Ratio(X)				0.97	0.90	0.94	0.83	0.68	0.00			
Avail Cap(c_a), veh/h				942	884	894	530	498	0			
HCM Platoon Ratio				0.33	0.33	0.33	1.67	1.67	1.00			
Upstream Filter(I)				0.09	0.09	0.09	0.41	0.41	0.00			
Uniform Delay (d), s/veh				51.8	47.2	48.8	35.3	31.8	0.0			
Incr Delay (d2), s/veh				3.9	1.6	2.7	4.2	1.1	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				33.9	28.4	30.6	13.9	8.5	0.0			
LnGrp Delay(d),s/veh				55.7	48.8	51.5	39.5	33.0	0.0			
LnGrp LOS				E	D	D	D	C				
Approach Vol, veh/h					2549			693				
Approach Delay, s/veh					52.2			36.7				
Approach LOS					D			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		89.6		40.4				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		79.0		39.0				
Max Q Clear Time (g_c+I1), s		85.6		33.1				
Green Ext Time (p_c), s		0.0		1.3				

Intersection Summary		
HCM 2010 Ctrl Delay		48.9
HCM 2010 LOS		D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	787	1106	312	42	1128	1208
Future Volume (vph)	787	1106	312	42	1128	1208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.96	0.85
Flt Protected	0.95	0.99	1.00		0.97	1.00
Satd. Flow (prot)	1449	3031	3129		3003	1297
Flt Permitted	0.95	0.99	1.00		0.97	1.00
Satd. Flow (perm)	1449	3031	3129		3003	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	828	1164	328	44	1187	1272
RTOR Reduction (vph)	64	64	8	0	0	0
Lane Group Flow (vph)	582	1282	364	0	1683	776
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	41.5	41.5	10.8		57.0	57.0
Effective Green, g (s)	41.5	41.5	10.8		57.0	57.0
Actuated g/C Ratio	0.32	0.32	0.08		0.44	0.44
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	462	967	259		1316	568
v/s Ratio Prot			c0.12		0.56	
v/s Ratio Perm	0.40	0.42				c0.60
v/c Ratio	1.26	1.33	1.40		1.28	1.37
Uniform Delay, d1	44.2	44.2	59.6		36.5	36.5
Progression Factor	0.82	0.84	1.00		1.00	1.00
Incremental Delay, d2	124.3	149.7	203.6		131.5	175.9
Delay (s)	160.7	186.9	263.2		168.0	212.4
Level of Service	F	F	F		F	F
Approach Delay (s)		178.4	263.2		182.0	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	186.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	123.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	74	2160	116	128	259	0	0	273	88
Future Volume (veh/h)	0	0	0	74	2160	116	128	259	0	0	273	88
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				78	2274	122	135	273	0	0	287	93
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				80	2467	136	163	300	0	0	573	186
Arrive On Green				0.50	0.50	0.49	0.82	0.82	0.00	0.00	0.41	0.41
Sat Flow, veh/h				160	4934	272	301	735	0	0	1403	454
Grp Volume(v), veh/h				906	752	815	408	0	0	0	0	380
Grp Sat Flow(s),veh/h/ln				1855	1695	1815	1036	0	0	0	0	1857
Q Serve(g_s), s				57.3	47.9	49.0	27.9	0.0	0.0	0.0	0.0	18.3
Cycle Q Clear(g_c), s				57.3	47.9	49.0	46.2	0.0	0.0	0.0	0.0	18.3
Prop In Lane				0.09		0.15	0.33		0.00	0.00		0.24
Lane Grp Cap(c), veh/h				927	848	907	463	0	0	0	0	758
V/C Ratio(X)				0.98	0.89	0.90	0.88	0.00	0.00	0.00	0.00	0.50
Avail Cap(c_a), veh/h				927	848	907	463	0	0	0	0	758
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.94	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				29.3	27.0	27.3	15.6	0.0	0.0	0.0	0.0	26.4
Incr Delay (d2), s/veh				24.6	13.3	13.6	19.8	0.0	0.0	0.0	0.0	2.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				35.5	25.5	27.9	15.0	0.0	0.0	0.0	0.0	9.9
LnGrp Delay(d),s/veh				53.9	40.2	40.9	35.3	0.0	0.0	0.0	0.0	28.8
LnGrp LOS				D	D	D	D					C
Approach Vol, veh/h					2474			408			380	
Approach Delay, s/veh					45.4			35.3			28.8	
Approach LOS					D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		65.0		55.0				55.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		59.0		49.0				49.0
Max Q Clear Time (g_c+I1), s		59.3		48.2				20.3
Green Ext Time (p_c), s		0.0		0.2				1.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Appendix F: Level of Service Build Alternatives

- HCS 2025 Build B-1
- HCS 2045 Build B-1
- Synchro 2025 Build B-1
- Synchro 2045 Build B-1
- HCS 2045 Build B-2
- Synchro 2045 Build B-2
- HCS 2045 Build B-3
- Synchro 2045 Build B-3
- HCS 2045 Build B-4
- Synchro 2045 Build B-4

HCS 2025 Build B-1

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3326	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	875	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1768	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1768	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.5	mi/h
Number of lanes, N	2	
Density, D	29.7	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	SW 25th Rd Ent/SW 8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5106	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1344	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1809	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1809	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	3	
Density, D	30.6	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4852	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1277	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1719	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1719	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.7	mi/h
Number of lanes, N	3	
Density, D	28.8	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5093	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1340	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1805	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1805	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.2	mi/h
Number of lanes, N	3	
Density, D	30.5	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5776	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1520	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1535	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1535	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	25.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4309	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1134	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1145	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1145	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	19.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2221	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	584	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	787	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	787	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	13.1	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3383	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	890	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1199	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1199	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.0	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	SW 8th St Ent/SW 25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3604	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	948	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1277	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1277	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	21.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1890	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	497	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1005	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1005	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	16.8	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1873	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	493	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	996	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	996	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	16.6	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	SW 25th Rd Ent/SW 8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2947	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	776	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1044	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1044	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	17.4	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2660	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	700	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	943	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	943	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	15.7	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3440	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	905	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1219	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1219	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5093	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1340	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1354	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1354	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	22.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3529	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	929	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	938	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	938	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	15.6	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1701	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	448	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	603	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	603	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	10.1	pc/mi/ln
Level of service, LOS	A	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3306	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	870	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1172	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1172	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.5	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	SW 8th St Ent/SW 25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3489	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	918	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1236	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1236	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	20.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1735	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	457	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	922	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	922	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	15.4	pc/mi/ln
Level of service, LOS	B	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5106	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	254	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1780	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5106		254		1780		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1344		67		468		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5428	270	1892	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10791.45 Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3426$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5428	6900	No
$v_{FO} = v - v_R$	5158	6900	No
v_R	270	2100	No
v_3 or v_{av34}	2002 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3426 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 33.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.322

Space mean speed in ramp influence area, S_R = 54.2 mph

Space mean speed in outer lanes, S_O = 61.9 mph

Space mean speed for all vehicles, S = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5106	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	254	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	171	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5106		254		171		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1344		67		45		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5428	270	182	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.612 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3426$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5428	6900	No
$v_{FO} = v - v_R$	5158	6900	No
v_R	270	2100	No
v_3 or v_{av34}	2002 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 3426$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3426	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 33.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D_S = 0.322$

Space mean speed in ramp influence area, $S_R = 54.2$ mph

Space mean speed in outer lanes, $S_0 = 61.9$ mph

Space mean speed for all vehicles, $S = 56.8$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	171	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	254	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4852	171	254	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1277	45	67	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5158	182	270	pcph

Estimation of V12 Merge Areas

L_{EQ} = 509.16 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3044 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5340	6900	No
v_3 or v_{av34}	2114 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 3044 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3226	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.392	
Space mean speed in ramp influence area,	S_R = 52.9	mph
Space mean speed in outer lanes,	S_0 = 54.2	mph
Space mean speed for all vehicles,	S = 53.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	4852	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	171	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	748	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4852	171	748	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1277	45	197	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5158	182	795	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 3044$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5340	6900	No
v_3 or v_{av34}	2114 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 3044$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3226	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 27.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.392$

Space mean speed in ramp influence area, $S_R = 52.9$ mph

Space mean speed in outer lanes, $S_O = 54.2$ mph

Space mean speed for all vehicles, $S = 53.4$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5771	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	801	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	748	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5771	801	748	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1519	211	197	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6135	852	795	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.111 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 683 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6987	9200	No
v_3 or v_{av34}	2726 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2454 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3306	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.336

Space mean speed in ramp influence area, S_R = 54.0 mph

Space mean speed in outer lanes, S_0 = 55.2 mph

Space mean speed for all vehicles, S = 54.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5771	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	801	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	884	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5771	801	884	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1519	211	233	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6135	852	940	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.111 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 683 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6987	9200	No
v_3 or v_{av34}	2726 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 2454 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3306	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.336

Space mean speed in ramp influence area, S_R = 54.0 mph

Space mean speed in outer lanes, S_0 = 55.2 mph

Space mean speed for all vehicles, S = 54.6 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5776	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1467	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2088	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5776		1467		2088		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1520		386		549		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6141	1560	2220	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3557 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6141	9200	No
$v_{FO} = v - v_R$	4581	9200	No
v_R	1560	2100	No
v_3 or v_{av34}	1292 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3557 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3557	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 34.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.438

Space mean speed in ramp influence area, S_R = 52.1 mph

Space mean speed in outer lanes, S_O = 64.7 mph

Space mean speed for all vehicles, S = 56.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2221	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	128	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2088	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2221	128	2088	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	584	34	549	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2361	136	2220	pcph

Estimation of V12 Merge Areas

L_{EQ} = 641.16 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1387 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2497	6900	No
v_3 or v_{av34}		974 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1387 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1523	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.307

Space mean speed in ramp influence area, S_R = 54.5 mph

Space mean speed in outer lanes, S_0 = 58.3 mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2221	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	128	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1034	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2221	128	1034	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	584	34	272	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2361	136	1099	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1387 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2497	6900	No
v_3 or v_{av34}		974 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1387 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1523	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.307	
Space mean speed in ramp influence area,	S_R = 54.5	mph
Space mean speed in outer lanes,	S_0 = 58.3	mph
Space mean speed for all vehicles,	S = 55.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2349	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1034	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	128	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2349	1034	128	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	618	272	34	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2497	1099	136	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3596	6900	No
v_3 or v_{av34}	1003 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1494 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2772	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2349	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1034	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2349	1034	221	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	618	272	58	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2497	1099	235	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1494 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3596	6900	No
v_3 or v_{av34}	1003 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 1494 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2772	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3383	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1034	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3383	221	1034	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	890	58	272	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3597	235	1099	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2188 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3832	6900	No
v_3 or v_{av34}	1409 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2188 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2423	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.266

Space mean speed in ramp influence area, S_R = 55.2 mph

Space mean speed in outer lanes, S_0 = 56.7 mph

Space mean speed for all vehicles, S = 55.8 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3383	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1714	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3383	221	1714	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	890	58	451	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3597	235	1822	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8015.84 (Equation 13-6 or 13-7)

P_{FM} = 0.694 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2496 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3832	6900	No
v_3 or v_{av34}	1101 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2496 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2731	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.282	
Space mean speed in ramp influence area,	S_R = 54.9	mph
Space mean speed in outer lanes,	S_0 = 57.8	mph
Space mean speed for all vehicles,	S = 55.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2947	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1074	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2947		287		1074		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	776		76		283		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3133	305	1142	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 9526.27 (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2193$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3133	6900	No
$v_{FO} = v - v_R$	2828	6900	No
v_R	305	2100	No
v_3 or v_{av34}	940 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2193 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2193	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.325

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2947	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	76	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2947		287		76		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	776		76		20		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3133	305	81	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.668 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2193$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3133	6900	No
$v_{FO} = v - v_R$	2828	6900	No
v_R	305	2100	No
v_3 or v_{av34}	940 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2193 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2193	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.325

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 65.8 mph

Space mean speed for all vehicles, S = 57.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	76	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	287	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2660	76	287	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	700	20	76	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2828	81	305	pcph

Estimation of V12 Merge Areas

L_{EQ} = -11.07 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1669 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2909	6900	No
v_3 or v_{av34}	1159 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1669 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1750	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 57.6	mph
Space mean speed for all vehicles,	S = 55.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2660	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	76	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	472	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2660	76	472	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	700	20	124	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2828	81	502	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 1669$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2909	6900	No
v_3 or v_{av34}	1159 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1669$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1750	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 16.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S = 0.316$

Space mean speed in ramp influence area, $S_R = 54.3$ mph

Space mean speed in outer lanes, $S_0 = 57.6$ mph

Space mean speed for all vehicles, $S = 55.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3208	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	888	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	472	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3208	888	472	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	844	234	124	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3411	944	502	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.100$ Using Equation 0

$v_{12} = v_F (P_{FM}) = 340$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4355	9200	No
v_3 or v_{av34}	1535 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1364$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2308	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A = 16.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.268	
Space mean speed in ramp influence area,	S_R = 55.2	mph
Space mean speed in outer lanes,	S_0 = 58.1	mph
Space mean speed for all vehicles,	S = 56.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3208	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	888	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	213	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3208	888	213	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	844	234	56	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3411	944	226	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.100$ Using Equation 0

$v_{12} = v_F (P_{FM}) = 340$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4355	9200	No
v_3 or v_{av34}	1535 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1364$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2308	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 16.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M_S = 0.268$

Space mean speed in ramp influence area, $S_R = 55.2$ mph

Space mean speed in outer lanes, $S_0 = 58.1$ mph

Space mean speed for all vehicles, $S = 56.5$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5093	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1564	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1828	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5093		1564		1828		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1340		412		481		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5415	1663	1943	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3299$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5415	9200	No
$v_{FO} = v - v_R$	3752	9200	No
v_R	1663	2100	No
v_3 or v_{av34}	1058 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3299 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3299	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 32.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D_S = 0.448

Space mean speed in ramp influence area, S_R = 51.9 mph

Space mean speed in outer lanes, S_O = 65.6 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1701	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	394	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1828	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1701	394	1828	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	448	104	481	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1808	419	1943	pcph

Estimation of V12 Merge Areas

L_{EQ} = 583.38 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1062 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2227	6900	No
v_3 or v_{av34}		746 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1062 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_R - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.307
Space mean speed in ramp influence area,	S_R = 54.5 mph
Space mean speed in outer lanes,	S_0 = 59.1 mph
Space mean speed for all vehicles,	S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1701	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	394	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1211	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1701	394	1211	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	448	104	319	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1808	419	1287	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1062 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		2227	6900	No
v_3 or v_{av34}		746 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 1062 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.307
Space mean speed in ramp influence area,	S_R = 54.5 mph
Space mean speed in outer lanes,	S_0 = 59.1 mph
Space mean speed for all vehicles,	S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2095	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1211	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	394	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2095	1211	394	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	551	319	104	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2227	1287	419	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1333 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3514	6900	No
v_3 or v_{av34}	894 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1333 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2779	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 59.2	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2095	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1211	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	183	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2095	1211	183	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	551	319	48	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2227	1287	195	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1333 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3514	6900	No
v_3 or v_{av34}	894 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1333 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2779	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 54.3	mph
Space mean speed in outer lanes,	S_0 = 59.2	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3306	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1211	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3306	183	1211	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	870	48	319	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3515	195	1287	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2138 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3710	6900	No
v_3 or v_{av34}	1377 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 2138 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2333	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.262

Space mean speed in ramp influence area, S_R = 55.3 mph

Space mean speed in outer lanes, S_0 = 56.8 mph

Space mean speed for all vehicles, S = 55.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2025 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3306	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1754	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3306	183	1754	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	870	48	462	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3515	195	1865	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8205.02 (Equation 13-6 or 13-7)

P_{FM} = 0.697 Using Equation 5

$v_{12} = v_F (P_{FM}) =$ 2451 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3710	6900	No
v_3 or v_{av34}	1064 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2451 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2646	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.277

Space mean speed in ramp influence area, S_R = 55.0 mph

Space mean speed in outer lanes, S_0 = 58.0 mph

Space mean speed for all vehicles, S = 55.8 mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	5093	60	3	2.0%	0.95	1.5	0.985	1.00	5443	6900	No	0.79
Merging[2]	441	45	2	2.0%	0.95	1.5	0.985	1.00	472	4200	No	0.11
Downstream[1]	5534	60	5	2.0%	0.95	1.5	0.985	1.00	5914	11500	No	0.51

Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3440	60	3	2.0%	0.95	1.5	0.985	1.00	3677	6900	No	0.53
Merging[2]	2628	45	2	2.0%	0.95	1.5	0.985	1.00	2809	4200	No	0.67
Downstream[1]	6068	60	5	2.0%	0.95	1.5	0.985	1.00	6485	11500	No	0.56

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to EB 970

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4309	60	4	2.0%	0.95	1.5	0.985	1.00	4605	9200	No	0.50
Diverging[2]	2088	45	2	2.0%	0.95	1.5	0.985	1.00	2232	4200	No	0.53
Downstream[1]	2221	60	3	2.0%	0.95	1.5	0.985	1.00	2374	6900	No	0.34

Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3529	60	4	2.0%	0.95	1.5	0.985	1.00	3772	9200	No	0.41
Diverging[2]	1828	45	2	2.0%	0.95	1.5	0.985	1.00	1954	4200	No	0.47
Downstream[1]	1701	60	3	2.0%	0.95	1.5	0.985	1.00	1818	6900	No	0.26

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Rd

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3326	60	2	2.0%	0.95	1.5	0.985	1.00	3555	4600	No	0.77
Merging[2]	1780	45	2	2.0%	0.95	1.5	0.985	1.00	1903	4200	No	0.45
Downstream[1]	5106	60	3	2.0%	0.95	1.5	0.985	1.00	5457	6900	No	0.79

Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	1873	60	2	2.0%	0.95	1.5	0.985	1.00	2002	4600	No	0.44
Merging[2]	1074	45	2	2.0%	0.95	1.5	0.985	1.00	1148	4200	No	0.27
Downstream[1]	2947	60	3	2.0%	0.95	1.5	0.985	1.00	3150	6900	No	0.46

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to SW 25th Rd

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2025 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3604	60	3	2.0%	0.95	1.5	0.985	1.00	3852	6900	No	0.56
Diverging[2]	1714	45	2	2.0%	0.95	1.5	0.985	1.00	1832	4200	No	0.44
Downstream[1]	1890	60	2	2.0%	0.95	1.5	0.985	1.00	2020	4600	No	0.44

Build 2025 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3489	60	3	2.0%	0.95	1.5	0.985	1.00	3729	6900	No	0.54
Diverging[2]	1754	45	2	2.0%	0.95	1.5	0.985	1.00	1875	4200	No	0.45
Downstream[1]	1735	60	2	2.0%	0.95	1.5	0.985	1.00	1855	4600	No	0.40

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2025 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5001	727	823	21	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1316	191	217	6	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5317	773	875	22	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	66	lc/h
Weaving lane changes, LCW	397	lc/h
Non-weaving vehicle index, INW	780	
Non-weaving lane change, LCNW	1423	lc/h
Total lane changes, LCALL	1820	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.278	
Average weaving speed, SW	50.2	mi/h
Average non-weaving speed, SNW	51.1	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	51.1	mi/h
Weaving segment density, D	34.2	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.888	
Weaving segment flow rate, v	6918	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5757	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.888	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2025 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5244	733	580	15	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1380	193	153	4	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5575	779	617	16	pc/h

Volume ratio, VR 0.002

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	48	lc/h
Weaving lane changes, LCW	483	lc/h
Non-weaving vehicle index, INW	1227	
Non-weaving lane change, LCNW	1858	lc/h
Total lane changes, LCALL	2341	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.237	
Average weaving speed, SW	51.4	mi/h
Average non-weaving speed, SNW	51.3	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	51.3	mi/h
Weaving segment density, D	34.1	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.861	
Weaving segment flow rate, v	6918	veh/h
Weaving segment capacity, cW	8032	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5749	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2028	c
		Maximum	Analyzed	
v/c ratio		1.00	0.861	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2025 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3416	467	208	5	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	899	123	55	1	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3632	496	221	5	pc/h

Volume ratio, VR 0.001

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	15	lc/h
Weaving lane changes, LCW	346	lc/h
Non-weaving vehicle index, INW	487	
Non-weaving lane change, LCNW	884	lc/h
Total lane changes, LCALL	1230	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.204	
Average weaving speed, SW	52.4	mi/h
Average non-weaving speed, SNW	54.7	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.7	mi/h
Weaving segment density, D	19.9	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.553	
Weaving segment flow rate, v	4312	veh/h
Weaving segment capacity, cW	7794	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5739	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1968	c
		Maximum	Analyzed	
v/c ratio		1.00	0.553	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2025 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3192	461	432	11	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	840	121	114	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3394	490	459	12	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	36	lc/h
Weaving lane changes, LCW	471	lc/h
Non-weaving vehicle index, INW	764	
Non-weaving lane change, LCNW	1317	lc/h
Total lane changes, LCALL	1788	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.192	
Average weaving speed, SW	52.8	mi/h
Average non-weaving speed, SNW	54.5	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.5	mi/h
Weaving segment density, D	20.0	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.537	
Weaving segment flow rate, v	4312	veh/h
Weaving segment capacity, cW	8032	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5753	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2028	c
		Maximum	Analyzed	
v/c ratio		1.00	0.537	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2045 Build B-1

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3675	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	967	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1954	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1954	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	2	
Density, D	33.9	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5641	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1484	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1999	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1999	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.1	mi/h
Number of lanes, N	3	
Density, D	35.0+	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5345	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1407	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1894	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1894	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	58.4	mi/h
Number of lanes, N	3	
Density, D	32.4	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5761	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1516	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	2042	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	2042	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes, N	3	
Density, D	36.2	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	6382	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1679	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1696	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1696	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	59.8	mi/h
Number of lanes, N	4	
Density, D	28.3	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4761	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1253	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1265	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1265	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	21.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2454	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	646	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	870	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	870	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	14.5	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3739	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	984	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1325	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1325	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	22.1	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	8th St Ent/25th Rd Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	4007	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1054	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1420	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1420	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.7	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2113	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	556	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1123	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1123	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.7	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2070	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	545	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1100	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1100	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3257	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	857	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1154	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1154	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.2	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2922	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	769	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1036	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1036	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3901	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1027	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1382	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1382	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.0	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	North of SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5627	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1481	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1496	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1496	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	24.9	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 7th St/Exit to 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3899	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1026	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1036	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1036	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	4	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Exit to 970/Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1879	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	494	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	666	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	666	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	11.1	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	Ent from 970/Ent from 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3653	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	961	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1295	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1295	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	21.6	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2070	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	545	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1100	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1100	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 SB
From/To:	South of SW 25th Rd
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	1936	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	509	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1029	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1029	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	17.1	pc/mi/ln
Level of service, LOS	B	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1966	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		1966		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		517		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	2090	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11297.85 Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3699$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	205	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		205		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		54		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	218	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11297.85 Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3699$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	205	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	296	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	205	296	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	54	78	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	218	315	pcph

Estimation of V12 Merge Areas

L_{EQ} = 629.21 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3354 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5901	6900	No
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 3354 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3572	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.433	
Space mean speed in ramp influence area,	S_R = 52.2	mph
Space mean speed in outer lanes,	S_0 = 53.3	mph
Space mean speed for all vehicles,	S = 52.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	205	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	903	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	205	903	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	54	238	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	218	960	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 3354$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	5901	6900	No
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 3354$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3572	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_R - 0.00627\, L_A = 30.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.433$
Space mean speed in ramp influence area,	$S_R = 52.2$ mph
Space mean speed in outer lanes,	$S_0 = 53.3$ mph
Space mean speed for all vehicles,	$S = 52.6$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6453	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	942	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	903	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6453	942	903	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1698	248	238	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6861	1001	960	pcph

Estimation of V12 Merge Areas

L_{EQ} = 716.95 (Equation 13-6 or 13-7)

P_{FM} = 0.093 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 636 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7862	9200	No
v_3 or v_{av34}	3112 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	Yes	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2744 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3745	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.394	
Space mean speed in ramp influence area,	S_R = 52.9	mph
Space mean speed in outer lanes,	S_0 = 54.4	mph
Space mean speed for all vehicles,	S = 53.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6453	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	942	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	977	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6453	942	977	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1698	248	257	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6861	1001	1039	pcph

Estimation of V12 Merge Areas

L_{EQ} = 716.95 (Equation 13-6 or 13-7)

P_{FM} = 0.093 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 636 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	7862	9200	No
v_3 or v_{av34}	3112 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		Yes
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes
If yes, v_{12A}	= 2744	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3745	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A$ = 27.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.394	
Space mean speed in ramp influence area,	S_R = 52.9	mph
Space mean speed in outer lanes,	S_0 = 54.4	mph
Space mean speed for all vehicles,	S = 53.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	6382	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1621	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2307	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6382		1621		2307		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1679		427		607		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	6785	1723	2453	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3930$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	6785	9200	No
$v_{FO} = v - v_R$	5062	9200	No
v_R	1723	2100	No
v_3 or v_{av34}	1427 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 3930$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3930	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 38.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.453

Space mean speed in ramp influence area, S_R = 51.8 mph

Space mean speed in outer lanes, S_O = 64.2 mph

Space mean speed for all vehicles, S = 56.4 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2454	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	142	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2307	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2454	142	2307	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	646	37	607	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2609	151	2453	pcph

Estimation of V12 Merge Areas

L_{EQ} = 697.44 (Equation 13-6 or 13-7)

P_{FM} = 0.584 Using Equation 4

$v_{12} = v_F (P_{FM})$ = 1524 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2760	6900	No
v_3 or v_{av34}	1085 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1524 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1675	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_R - 0.00627\, L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 57.9	mph
Space mean speed for all vehicles,	S = 55.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 Sb
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2454	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	142	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1143	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2454	142	1143	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	646	37	301	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2609	151	1215	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1532 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2760	6900	No
v_3 or v_{av34}	1077 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1532 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1683	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, M_S = 0.310

Space mean speed in ramp influence area, S_R = 54.4 mph

Space mean speed in outer lanes, S_0 = 57.9 mph

Space mean speed for all vehicles, S = 55.7 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2596	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1143	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	142	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2596	1143	142	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	683	301	37	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2760	1215	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1652 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3975	6900	No
v_3 or v_{av34}	1108 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1652 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3065	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_0 = 58.5	mph
Space mean speed for all vehicles,	S = 54.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build

Description: I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2596	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1143	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	268	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2596	1143	268	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	683	301	71	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2760	1215	285	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1652 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3975	6900	No
v_3 or v_{av34}	1108 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1652 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3065	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 53.9	mph
Space mean speed in outer lanes,	S_0 = 58.5	mph
Space mean speed for all vehicles,	S = 54.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3739	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	268	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1143	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3739	268	1143	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	984	71	301	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3975	285	1215	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1351.44 (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2418 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4260	6900	No
v_3 or v_{av34}	1557 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 2418 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2703	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.280	
Space mean speed in ramp influence area,	S_R = 55.0	mph
Space mean speed in outer lanes,	S_0 = 56.2	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3739	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	268	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1894	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3739	268	1894	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	984	71	498	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3975	285	2014	pcph

Estimation of V12 Merge Areas

L_{EQ} = 8860.54 (Equation 13-6 or 13-7)

P_{FM} = 0.709 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2819 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4260	6900	No
v_3 or v_{av34}	1156 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes

If yes, v_{12A} = 2819 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3104	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 22.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.309	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 57.6	mph
Space mean speed for all vehicles,	S = 55.3	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1187	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		1187		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		312		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3463	356	1262	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10210.93 Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3463	6900	No
$v_{FO} = v - v_R$	3107	6900	No
v_R	356	2100	No
v_3 or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2397 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	90	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		90		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		24		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	3463		356		96		pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3463	6900	No
$v_{FO} = v - v_R$	3107	6900	No
v_R	356	2100	No
v_3 or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2397 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	90	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	90	335	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	24	88	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	96	356	pcph

Estimation of V12 Merge Areas

L_{EQ} = 51.84 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1833 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3203	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1833 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1929	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A =$ 17.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 54.2	mph
Space mean speed in outer lanes,	S_0 = 57.2	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	90	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	574	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	90	574	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	24	151	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	96	610	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1833 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3203	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 1833 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1929	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.321	
Space mean speed in ramp influence area,	S_R = 54.2	mph
Space mean speed in outer lanes,	S_0 = 57.2	mph
Space mean speed for all vehicles,	S = 55.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3586	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1040	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	574	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3586	1040	574	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	944	274	151	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3812	1106	610	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.080$ Using Equation 0

$v_{12} = v_F (P_{FM}) = 303$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4918	9200	No
v_3 or v_{av34}	1754 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1524$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2630	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_{12} - 0.00627\ L_A = 19.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.283	
Space mean speed in ramp influence area,	S_R = 54.9	mph
Space mean speed in outer lanes,	S_0 = 57.7	mph
Space mean speed for all vehicles,	S = 56.2	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 7th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3586	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1040	vph
Length of first accel/decel lane	1020	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	236	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3586	1040	236	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	944	274	62	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3812	1106	251	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.080$ Using Equation 0

$v_{12} = v_F (P_{FM}) = 303$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4918	9200	No
v_3 or v_{av34}	1754 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1524$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2630	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_{12} + 0.0078\ v_R - 0.00627\ L_A = 19.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	$M_S = 0.283$
Space mean speed in ramp influence area,	$S_R = 54.9$ mph
Space mean speed in outer lanes,	$S_0 = 57.7$ mph
Space mean speed for all vehicles,	$S = 56.2$ mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Exit to SW 7th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5627	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1728	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	2020	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	Off	
Distance to adjacent ramp	450	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5627		1728		2020		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1481		455		532		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5982	1837	2148	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.436 Using Equation 0

$v_{12} = v_R + (v - v_F) P_{FD} = 3644$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5982	9200	No
$v_{FO} = v - v_R$	4145	9200	No
v_R	1837	2100	No
v_3 or v_{av34}	1169 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 3644$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3644	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 35.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.463

Space mean speed in ramp influence area, S_R = 51.7 mph

Space mean speed in outer lanes, S_O = 65.2 mph

Space mean speed for all vehicles, S = 56.2 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1879	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	436	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	2020	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	650	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1879	436	2020	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	494	115	532	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1998	464	2148	pcph

Estimation of V12 Merge Areas

L_{EQ} = 633.67 (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2462	6900	No
v_3 or v_{av34}	825 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No
Is v_3 or v_{av34}	> 1.5 v_{12} /2		No

If yes, v_{12A} = 1173 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1637	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_{R12} + 0.0078\ v_{12} - 0.00627\ L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from NW 3rd Ct
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	1879	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	436	vph
Length of first accel/decel lane	350	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1338	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1879	436	1338	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	494	115	352	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1998	464	1423	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.587 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1173 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2462	6900	No
v_3 or v_{av34}	825 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1173 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	1637	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 54.4	mph
Space mean speed in outer lanes,	S_0 = 58.8	mph
Space mean speed for all vehicles,	S = 55.8	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2315	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1338	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	436	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	500	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2315	1338	436	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	609	352	115	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2461	1423	464	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1473 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		3884	6900	No
v_3 or v_{av34}		988 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2		Yes	

If yes, v_{12A} = 1473 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3072	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.338

Space mean speed in ramp influence area, S_R = 53.9 mph

Space mean speed in outer lanes, S_0 = 58.9 mph

Space mean speed for all vehicles, S = 54.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from WB 970
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2315	vph

On Ramp Data

Side of freeway	Left	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1338	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	221	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2315	1338	221	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	609	352	58	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2461	1423	235	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.599 Using Equation 3

$v_{12} = v_F (P_{FM}) =$ 1473 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3884	6900	No
v_3 or v_{av34}	988 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, v_{12A} = 1473 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3072	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.338

Space mean speed in ramp influence area, S_R = 53.9 mph

Space mean speed in outer lanes, S_0 = 58.9 mph

Space mean speed for all vehicles, S = 54.9 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3653	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1338	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	2950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3653	221	1338	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	961	58	352	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3884	235	1423	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 0.608 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 2363 pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{FO}		4119	6900	No
v_3 or v_{av34}		1521 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?		No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2		Yes	

If yes, v_{12A} = 2363 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2598	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_{12} + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.274	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_0 = 56.3	mph
Space mean speed for all vehicles,	S = 55.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 SB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3653	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	221	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1938	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	3300	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3653	221	1938	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	961	58	510	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3884	235	2060	pcph

Estimation of V12 Merge Areas

L_{EQ} = 9062.91 (Equation 13-6 or 13-7)

P_{FM} = 0.713 Using Equation 5

$v_{12} = v_F (P_{FM})$ = 2768 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4119	6900	No
v_3 or v_{av34}	1116 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	
If yes, v_{12A} = 2768	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3003	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 54.6	mph
Space mean speed in outer lanes,	S_0 = 57.8	mph
Space mean speed for all vehicles,	S = 55.4	mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3675	60	2	2.0%	0.95	1.5	0.985	1.00	3928	4600	No	0.85
Merging[2]	1966	45	2	2.0%	0.95	1.5	0.985	1.00	2101	4200	No	0.50
Downstream[1]	5641	60	3	2.0%	0.95	1.5	0.985	1.00	6029	6900	No	0.87

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	2070	60	2	2.0%	0.95	1.5	0.985	1.00	2213	4600	No	0.48
Merging[2]	1187	45	2	2.0%	0.95	1.5	0.985	1.00	1269	4200	No	0.30
Downstream[1]	3257	60	3	2.0%	0.95	1.5	0.985	1.00	3481	6900	No	0.50

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	5761	60	3	2.0%	0.95	1.5	0.985	1.00	6157	6900	No	0.89
Merging[2]	488	45	2	2.0%	0.95	1.5	0.985	1.00	522	4200	No	0.12
Downstream[1]	6249	60	5	2.0%	0.95	1.5	0.985	1.00	6679	11500	No	0.58

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3901	60	3	2.0%	0.95	1.5	0.985	1.00	4169	6900	No	0.60
Merging[2]	2904	45	2	2.0%	0.95	1.5	0.985	1.00	3104	4200	No	0.74
Downstream[1]	6805	60	5	2.0%	0.95	1.5	0.985	1.00	7273	11500	No	0.63

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to EB 970

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4761	60	4	2.0%	0.95	1.5	0.985	1.00	5088	9200	No	0.55
Diverging[2]	2307	45	2	2.0%	0.95	1.5	0.985	1.00	2466	4200	No	0.59
Downstream[1]	2454	60	3	2.0%	0.95	1.5	0.985	1.00	2623	6900	No	0.38

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3899	60	4	2.0%	0.95	1.5	0.985	1.00	4167	9200	No	0.45
Diverging[2]	2020	45	2	2.0%	0.95	1.5	0.985	1.00	2159	4200	No	0.51
Downstream[1]	1879	60	3	2.0%	0.95	1.5	0.985	1.00	2009	6900	No	0.29

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Diverge:

I-95 Southbound Exit Ramp to SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	4007	60	3	2.0%	0.95	1.5	0.985	1.00	4283	6900	No	0.62
Diverging[2]	1894	45	2	2.0%	0.95	1.5	0.985	1.00	2025	4200	No	0.48
Downstream[1]	2113	60	2	2.0%	0.95	1.5	0.985	1.00	2259	4600	No	0.49

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3874	60	3	2.0%	0.95	1.5	0.985	1.00	4140	6900	No	0.60
Diverging[2]	1938	45	2	2.0%	0.95	1.5	0.985	1.00	2072	4200	No	0.49
Downstream[1]	1936	60	2	2.0%	0.95	1.5	0.985	1.00	2069	4600	No	0.45

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5539	879	953	24	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1458	231	251	6	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5889	935	1013	26	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	78	lc/h
Weaving lane changes, LCW	409	lc/h
Non-weaving vehicle index, INW	878	
Non-weaving lane change, LCNW	1603	lc/h
Total lane changes, LCALL	2012	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.301	
Average weaving speed, SW	49.6	mi/h
Average non-weaving speed, SNW	50.0	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	50.0	mi/h
Weaving segment density, D	39.3	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.999	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5758	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.999	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5851	887	641	16	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1540	233	169	4	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	6221	943	681	17	pc/h

Volume ratio, VR 0.002

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	51	lc/h
Weaving lane changes, LCW	486	lc/h
Non-weaving vehicle index, INW	1381	
Non-weaving lane change, LCNW	2212	lc/h
Total lane changes, LCALL	2698	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.265	
Average weaving speed, SW	50.6	mi/h
Average non-weaving speed, SNW	50.2	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	50.2	mi/h
Weaving segment density, D	39.2	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.969	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	8036	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5748	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2029	c
		Maximum	Analyzed	
v/c ratio		1.00	0.969	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3822	568	230	6	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1006	149	61	2	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4063	604	245	6	pc/h

Volume ratio, VR 0.001

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	18	lc/h
Weaving lane changes, LCW	349	lc/h
Non-weaving vehicle index, INW	550	
Non-weaving lane change, LCNW	1000	lc/h
Total lane changes, LCALL	1349	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.219	
Average weaving speed, SW	51.9	mi/h
Average non-weaving speed, SNW	54.0	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.0	mi/h
Weaving segment density, D	22.8	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.625	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	7794	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5739	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1968	c
		Maximum	Analyzed	
v/c ratio		1.00	0.625	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3575	562	477	12	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	941	148	126	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3801	597	507	13	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	39	lc/h
Weaving lane changes, LCW	474	lc/h
Non-weaving vehicle index, INW	863	
Non-weaving lane change, LCNW	1432	lc/h
Total lane changes, LCALL	1906	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.202	
Average weaving speed, SW	52.4	mi/h
Average non-weaving speed, SNW	53.8	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.8	mi/h
Weaving segment density, D	22.8	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.606	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	8032	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5752	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2028	c
		Maximum	Analyzed	
v/c ratio		1.00	0.606	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

Synchro 2025 Build B-1

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1309	52	0	0	0	0	169	50	154	154	0
Future Volume (vph)	255	1309	52	0	0	0	0	169	50	154	154	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4686						1745			1757	
Flt Permitted		0.99						1.00			0.51	
Satd. Flow (perm)		4686						1745			916	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	268	1378	55	0	0	0	0	178	53	162	162	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1698	0	0	0	0	0	220	0	0	324	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		44.7						28.0			43.0	
Effective Green, g (s)		44.7						28.0			43.0	
Actuated g/C Ratio		0.45						0.28			0.43	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2094						488			474	
v/s Ratio Prot								0.13			c0.07	
v/s Ratio Perm		0.36									c0.23	
v/c Ratio		0.81						0.45			0.68	
Uniform Delay, d1		24.0						29.7			23.0	
Progression Factor		1.00						1.00			0.75	
Incremental Delay, d2		3.5						3.0			7.5	
Delay (s)		27.5						32.7			24.6	
Level of Service		C						C			C	
Approach Delay (s)		27.5			0.0			32.7			24.6	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1418	8	0	0	0	0	80	494	0	0	0
Future Volume (veh/h)	87	1418	8	0	0	0	0	80	494	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	92	1493	8				0	84	520			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	140	1931	10				0	111	684			
Arrive On Green	0.41	0.41	0.41				0.00	0.49	0.49			
Sat Flow, veh/h	258	4730	25				0	225	1392			
Grp Volume(v), veh/h	569	489	536				0	0	604			
Grp Sat Flow(s),veh/h/ln	1780	1543	1691				0	0	1617			
Q Serve(g_s), s	28.4	32.9	32.9				0.0	0.0	36.4			
Cycle Q Clear(g_c), s	33.2	32.9	32.9				0.0	0.0	36.4			
Prop In Lane	0.16		0.01				0.00		0.86			
Lane Grp Cap(c), veh/h	762	630	690				0	0	795			
V/C Ratio(X)	0.75	0.78	0.78				0.00	0.00	0.76			
Avail Cap(c_a), veh/h	762	630	690				0	0	795			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	30.7	30.7	30.7				0.0	0.0	24.7			
Incr Delay (d2), s/veh	6.6	9.1	8.3				0.0	0.0	6.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	17.7	15.6	16.9				0.0	0.0	17.6			
LnGrp Delay(d),s/veh	37.3	39.8	39.1				0.0	0.0	31.5			
LnGrp LOS	D	D	D						C			
Approach Vol, veh/h		1593						604				
Approach Delay, s/veh		38.7						31.5				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				65.0		55.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				59.0		49.0		
Max Q Clear Time (g_c+I1), s				38.4		35.2		
Green Ext Time (p_c), s				3.8		7.4		

Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1874	38	0	0	0	0	0	0	186	532	0
Future Volume (veh/h)	0	1874	38	0	0	0	0	0	0	186	532	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1973	40							196	560	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2653	54							2169	740	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	6097	119							4503	1676	0
Grp Volume(v), veh/h	0	1456	557							196	560	0
Grp Sat Flow(s),veh/h/ln	0	1442	1655							1501	1676	0
Q Serve(g_s), s	0.0	38.7	38.7							4.5	38.5	0.0
Cycle Q Clear(g_c), s	0.0	38.7	38.7							4.5	38.5	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1957	749							2169	740	0
V/C Ratio(X)	0.00	0.74	0.74							0.09	0.76	0.00
Avail Cap(c_a), veh/h	0	1957	749							2169	740	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.55	0.55							0.73	0.73	0.00
Uniform Delay (d), s/veh	0.0	44.4	44.4							30.6	45.1	0.0
Incr Delay (d2), s/veh	0.0	1.5	3.7							0.1	5.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.7	18.5							1.9	19.0	0.0
LnGrp Delay(d),s/veh	0.0	45.8	48.1							30.6	50.3	0.0
LnGrp LOS		D	D							C	D	
Approach Vol, veh/h		2013									756	
Approach Delay, s/veh		46.5									45.2	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		61.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		53.0				
Max Q Clear Time (g_c+I1), s		40.7		40.5				
Green Ext Time (p_c), s		8.4		3.0				

Intersection Summary	
HCM 2010 Ctrl Delay	46.1
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018

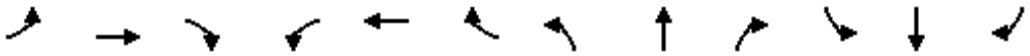
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1105	0	0	0	0	0	261	334	9	0	0
Future Volume (vph)	36	1105	0	0	0	0	0	261	334	9	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4570						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.53		
Satd. Flow (perm)		4570						1676	1425	892		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	1163	0	0	0	0	0	275	352	9	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	15	0	0	0
Lane Group Flow (vph)	0	1201	0	0	0	0	0	275	337	9	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		52.0						56.0	56.0	56.0		
Effective Green, g (s)		52.0						56.0	56.0	56.0		
Actuated g/C Ratio		0.43						0.47	0.47	0.47		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		1980						782	665	416		
v/s Ratio Prot								0.16				
v/s Ratio Perm		0.26							c0.24	0.01		
v/c Ratio		0.61						0.35	0.51	0.02		
Uniform Delay, d1		26.1						20.4	22.3	17.2		
Progression Factor		0.23						1.00	1.00	1.76		
Incremental Delay, d2		0.9						1.2	2.7	0.0		
Delay (s)		6.9						21.7	25.1	30.3		
Level of Service		A						C	C	C		
Approach Delay (s)		6.9			0.0			23.6			30.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	413	1767	266	0	0	0	0	990	90	259	433	0
Future Volume (vph)	413	1767	266	0	0	0	0	990	90	259	433	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		5432						4476			3096	
Flt Permitted		0.99						1.00			0.52	
Satd. Flow (perm)		5432						4476			1640	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	435	1860	280	0	0	0	0	1042	95	273	456	0
RTOR Reduction (vph)	0	18	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	2557	0	0	0	0	0	1128	0	0	729	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		53.7						44.7			53.7	
Effective Green, g (s)		53.7						44.7			53.7	
Actuated g/C Ratio		0.45						0.37			0.45	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2430						1667			794	
v/s Ratio Prot								0.25			c0.04	
v/s Ratio Perm		0.47									c0.37	
v/c Ratio		1.05						0.68			2.07dl	
Uniform Delay, d1		33.1						31.6			31.1	
Progression Factor		1.16						1.00			0.29	
Incremental Delay, d2		33.6						2.2			11.3	
Delay (s)		72.1						33.8			20.3	
Level of Service		E						C			C	
Approach Delay (s)		72.1			0.0			33.8			20.3	
Approach LOS		E			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	53.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1607	509	0	0	0	0	0	0	248	556	0
Future Volume (veh/h)	0	1607	509	0	0	0	0	0	0	248	556	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1692	536							261	585	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2062	635							301	595	0
Arrive On Green	0.00	0.20	0.20							0.10	0.10	0.00
Sat Flow, veh/h	0	3586	1059							842	2060	0
Grp Volume(v), veh/h	0	1482	746							431	415	0
Grp Sat Flow(s),veh/h/ln	0	1511	1473							1391	1435	0
Q Serve(g_s), s	0.0	56.3	58.5							36.0	34.5	0.0
Cycle Q Clear(g_c), s	0.0	56.3	58.5							36.0	34.5	0.0
Prop In Lane	0.00		0.72							0.61		0.00
Lane Grp Cap(c), veh/h	0	1813	884							466	431	0
V/C Ratio(X)	0.00	0.82	0.84							0.93	0.96	0.00
Avail Cap(c_a), veh/h	0	1813	884							466	431	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.09	0.09							0.87	0.87	0.00
Uniform Delay (d), s/veh	0.0	41.8	42.7							54.6	53.4	0.0
Incr Delay (d2), s/veh	0.0	0.4	1.0							24.3	32.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	23.7	24.1							17.5	17.6	0.0
LnGrp Delay(d),s/veh	0.0	42.2	43.7							78.9	85.6	0.0
LnGrp LOS		D	D							E	F	
Approach Vol, veh/h		2228									846	
Approach Delay, s/veh		42.7									82.2	
Approach LOS		D									F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		78.0		42.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		72.0		36.0				
Max Q Clear Time (g_c+I1), s		60.5		38.0				
Green Ext Time (p_c), s		6.0		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	53.6
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	1626	0	0	0	0	0	660	77	0	0	0
Future Volume (veh/h)	229	1626	0	0	0	0	0	660	77	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	241	1712	0				0	695	81			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	358	2300	0				0	1168	135			
Arrive On Green	0.20	0.20	0.00				0.00	0.28	0.28			
Sat Flow, veh/h	515	3866	0				0	4271	476			
Grp Volume(v), veh/h	700	1253	0				0	508	268			
Grp Sat Flow(s),veh/h/ln	1496	1375	0				0	1511	1576			
Q Serve(g_s), s	52.9	51.3	0.0				0.0	17.4	17.6			
Cycle Q Clear(g_c), s	52.9	51.3	0.0				0.0	17.4	17.6			
Prop In Lane	0.34		0.00				0.00		0.30			
Lane Grp Cap(c), veh/h	963	1696	0				0	856	447			
V/C Ratio(X)	0.73	0.74	0.00				0.00	0.59	0.60			
Avail Cap(c_a), veh/h	963	1696	0				0	856	447			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.43	0.43	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	39.4	38.7	0.0				0.0	37.0	37.1			
Incr Delay (d2), s/veh	2.1	1.3	0.0				0.0	3.0	5.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	22.5	19.9	0.0				0.0	7.6	8.4			
LnGrp Delay(d),s/veh	41.5	40.0	0.0				0.0	40.1	43.0			
LnGrp LOS	D	D						D	D			
Approach Vol, veh/h		1953						776				
Approach Delay, s/veh		40.5						41.1				
Approach LOS		D						D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		40.0		80.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		34.0		74.0				
Max Q Clear Time (g_c+I1), s		19.6		54.9				
Green Ext Time (p_c), s		4.4		13.6				

Intersection Summary		
HCM 2010 Ctrl Delay		40.7
HCM 2010 LOS		D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

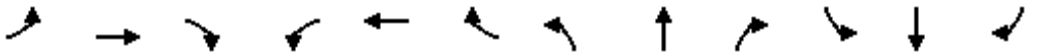
12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	607	68	309	580	0	0	0	0
Future Volume (vph)	0	0	0	0	607	68	309	580	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					4463		1435	3014				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					4463		1435	3014				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	639	72	325	611	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	55	13	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	700	0	237	631	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					45.0		63.0	63.0				
Effective Green, g (s)					45.0		63.0	63.0				
Actuated g/C Ratio					0.38		0.52	0.52				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					1673		753	1582				
v/s Ratio Prot					c0.16							
v/s Ratio Perm							0.17	0.21				
v/c Ratio					0.42		0.32	0.40				
Uniform Delay, d1					27.8		16.2	17.1				
Progression Factor					1.00		0.18	0.41				
Incremental Delay, d2					0.8		0.8	0.6				
Delay (s)					28.6		3.8	7.6				
Level of Service					C		A	A				
Approach Delay (s)		0.0			28.6			6.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	127	789	0	0	0	0	0	677	337
Future Volume (vph)	0	0	0	127	789	0	0	0	0	0	677	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4501						3000	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4501						3000	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	134	831	0	0	0	0	0	713	355
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	3	31
Lane Group Flow (vph)	0	0	0	0	947	0	0	0	0	0	746	288
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					47.0						61.0	61.0
Effective Green, g (s)					47.0						61.0	61.0
Actuated g/C Ratio					0.39						0.51	0.51
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					1762						1525	652
v/s Ratio Prot											c0.25	
v/s Ratio Perm					0.21							0.22
v/c Ratio					0.54						0.49	0.44
Uniform Delay, d1					28.1						19.3	18.7
Progression Factor					0.37						1.00	1.00
Incremental Delay, d2					1.1						1.1	2.2
Delay (s)					11.6						20.4	20.9
Level of Service					B						C	C
Approach Delay (s)		0.0			11.6			0.0			20.6	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	854	207	282	1121	0	0	627	177
Future Volume (veh/h)	0	0	0	65	854	207	282	1121	0	0	627	177
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				68	899	218	297	1180	0	0	660	186
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				84	1175	295	383	1787	0	0	831	234
Arrive On Green				0.11	0.11	0.11	0.35	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				252	3524	886	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				444	371	370	297	1180	0	0	428	418
Grp Sat Flow(s),veh/h/ln				1648	1511	1504	1581	1577	0	0	1577	1539
Q Serve(g_s), s				31.6	28.5	28.6	10.6	0.0	0.0	0.0	29.4	29.5
Cycle Q Clear(g_c), s				31.6	28.5	28.6	10.6	0.0	0.0	0.0	29.4	29.5
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				549	504	501	383	1787	0	0	539	526
V/C Ratio(X)				0.81	0.74	0.74	0.78	0.66	0.00	0.00	0.79	0.80
Avail Cap(c_a), veh/h				549	504	501	409	1787	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.84	0.84	0.84	0.68	0.68	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				49.7	48.3	48.3	33.0	0.0	0.0	0.0	35.7	35.7
Incr Delay (d2), s/veh				10.4	7.8	8.0	5.2	1.3	0.0	0.0	11.5	11.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				16.0	13.0	13.0	8.6	0.3	0.0	0.0	14.6	14.3
LnGrp Delay(d),s/veh				60.1	56.1	56.3	38.2	1.3	0.0	0.0	47.1	47.5
LnGrp LOS				E	E	E	D	A			D	D
Approach Vol, veh/h					1185			1477			846	
Approach Delay, s/veh					57.7			8.7			47.3	
Approach LOS					E			A			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		46.0		74.0			27.0	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		33.6		2.0			12.6	31.5
Green Ext Time (p_c), s		1.9		3.9			0.3	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	34.6
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	9	427	76	191	106	0	0	0	0
Future Volume (veh/h)	0	0	0	9	427	76	191	106	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				9	449	80	201	112	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				64	2796	483	298	250	0			
Arrive On Green				0.25	0.25	0.25	0.05	0.05	0.00			
Sat Flow, veh/h				44	3730	645	1581	1660	0			
Grp Volume(v), veh/h				199	166	173	201	112	0			
Grp Sat Flow(s),veh/h/ln				1646	1375	1397	1581	1660	0			
Q Serve(g_s), s				0.0	11.3	11.7	15.1	7.9	0.0			
Cycle Q Clear(g_c), s				11.3	11.3	11.7	15.1	7.9	0.0			
Prop In Lane				0.05		0.46	1.00		0.00			
Lane Grp Cap(c), veh/h				1266	1031	1047	298	250	0			
V/C Ratio(X)				0.16	0.16	0.17	0.68	0.45	0.00			
Avail Cap(c_a), veh/h				1266	1031	1047	837	816	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.54	0.54	0.54	0.94	0.94	0.00			
Uniform Delay (d), s/veh				15.5	15.6	15.7	55.6	52.2	0.0			
Incr Delay (d2), s/veh				0.1	0.2	0.2	1.9	0.9	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				5.3	4.4	4.6	6.8	3.7	0.0			
LnGrp Delay(d),s/veh				15.7	15.7	15.9	57.5	53.1	0.0			
LnGrp LOS				B	B	B	E	D				
Approach Vol, veh/h					538			313				
Approach Delay, s/veh					15.8			55.9				
Approach LOS					B			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		96.0		24.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		49.0		59.0				
Max Q Clear Time (g_c+I1), s		13.7		17.1				
Green Ext Time (p_c), s		1.1		0.9				

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	155	463	243	13	320	464
Future Volume (vph)	155	463	243	13	320	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.94	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	1449	3046	3161		2968	1297
Flt Permitted	0.95	1.00	1.00		0.97	1.00
Satd. Flow (perm)	1449	3046	3161		2968	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	163	487	256	14	337	488
RTOR Reduction (vph)	82	57	4	0	0	0
Lane Group Flow (vph)	65	446	266	0	561	264
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	53.0	53.0	14.9		31.4	31.4
Effective Green, g (s)	53.0	53.0	14.9		31.4	31.4
Actuated g/C Ratio	0.44	0.44	0.12		0.26	0.26
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	639	1345	392		776	339
v/s Ratio Prot			c0.08		0.19	
v/s Ratio Perm	0.04	0.15				c0.20
v/c Ratio	0.10	0.33	0.68		0.72	0.78
Uniform Delay, d1	19.6	21.9	50.3		40.3	41.1
Progression Factor	0.72	0.55	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.7	4.2		3.3	10.8
Delay (s)	14.4	12.8	54.5		43.7	51.8
Level of Service	B	B	D		D	D
Approach Delay (s)		13.2	54.5		46.3	
Approach LOS		B	D		D	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/12/2018

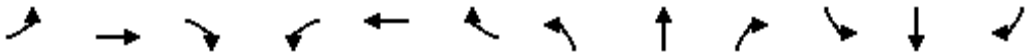
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	53	807	56	72	352	0	0	225	98
Future Volume (veh/h)	0	0	0	53	807	56	72	352	0	0	225	98
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				56	849	59	76	371	0	0	237	103
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				94	1509	108	174	824	0	0	731	318
Arrive On Green				0.32	0.32	0.31	1.00	1.00	0.00	0.00	0.57	0.57
Sat Flow, veh/h				292	4716	338	231	1446	0	0	1282	557
Grp Volume(v), veh/h				354	295	315	447	0	0	0	0	340
Grp Sat Flow(s),veh/h/ln				1848	1695	1803	1677	0	0	0	0	1839
Q Serve(g_s), s				16.1	14.3	14.4	0.0	0.0	0.0	0.0	0.0	9.8
Cycle Q Clear(g_c), s				16.1	14.3	14.4	9.8	0.0	0.0	0.0	0.0	9.8
Prop In Lane				0.16		0.19	0.17		0.00	0.00		0.30
Lane Grp Cap(c), veh/h				591	542	577	998	0	0	0	0	1048
V/C Ratio(X)				0.60	0.54	0.55	0.45	0.00	0.00	0.00	0.00	0.32
Avail Cap(c_a), veh/h				591	542	577	998	0	0	0	0	1048
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.88	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				28.6	28.0	28.1	0.0	0.0	0.0	0.0	0.0	11.3
Incr Delay (d2), s/veh				4.4	3.9	3.7	1.3	0.0	0.0	0.0	0.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.9	7.3	7.8	0.4	0.0	0.0	0.0	0.0	5.2
LnGrp Delay(d),s/veh				33.0	31.9	31.8	1.3	0.0	0.0	0.0	0.0	12.2
LnGrp LOS				C	C	C	A					B
Approach Vol, veh/h					964			447			340	
Approach Delay, s/veh					32.3			1.3			12.2	
Approach LOS					C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		37.0		63.0				63.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		31.0		57.0				57.0
Max Q Clear Time (g_c+I1), s		18.1		11.8				11.8
Green Ext Time (p_c), s		0.8		1.6				1.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
910: SW 8 AVE & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	1162	25	0	0	0	0	128	36	122	148	0
Future Volume (vph)	193	1162	25	0	0	0	0	128	36	122	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12	12	11	12	12	11	12
Total Lost time (s)		6.3						6.0			6.0	
Lane Util. Factor		0.91						1.00			1.00	
Frt		1.00						0.97			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4701						1747			1761	
Flt Permitted		0.99						1.00			0.63	
Satd. Flow (perm)		4701						1747			1141	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	203	1223	26	0	0	0	0	135	38	128	156	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1450	0	0	0	0	0	165	0	0	284	0
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		6						4		3	8	
Permitted Phases	6									8		
Actuated Green, G (s)		54.7						38.0			53.0	
Effective Green, g (s)		54.7						38.0			53.0	
Actuated g/C Ratio		0.46						0.32			0.44	
Clearance Time (s)		6.3						6.0			6.0	
Vehicle Extension (s)		1.0						2.5			1.0	
Lane Grp Cap (vph)		2142						553			553	
v/s Ratio Prot								0.09			c0.04	
v/s Ratio Perm		0.31									c0.19	
v/c Ratio		0.68						0.30			0.51	
Uniform Delay, d1		25.7						30.9			24.2	
Progression Factor		1.00						1.00			0.41	
Incremental Delay, d2		1.7						1.4			3.0	
Delay (s)		27.4						32.3			13.0	
Level of Service		C						C			B	
Approach Delay (s)		27.4			0.0			32.3			13.0	
Approach LOS		C			A			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
911: SW 5th Ave/5th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1081	39	0	0	0	0	151	306	0	0	0
Future Volume (veh/h)	200	1081	39	0	0	0	0	151	306	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	211	1138	41				0	159	322			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	346	1683	61				0	267	540			
Arrive On Green	0.42	0.42	0.42				0.00	0.48	0.48			
Sat Flow, veh/h	723	3977	144				0	551	1115			
Grp Volume(v), veh/h	476	439	475				0	0	481			
Grp Sat Flow(s),veh/h/ln	1632	1543	1670				0	0	1666			
Q Serve(g_s), s	30.9	29.8	29.8				0.0	0.0	27.2			
Cycle Q Clear(g_c), s	30.9	29.8	29.8				0.0	0.0	27.2			
Prop In Lane	0.44		0.09				0.00		0.67			
Lane Grp Cap(c), veh/h	730	653	706				0	0	807			
V/C Ratio(X)	0.65	0.67	0.67				0.00	0.00	0.60			
Avail Cap(c_a), veh/h	730	653	706				0	0	807			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	30.6	30.2	30.2				0.0	0.0	24.3			
Incr Delay (d2), s/veh	4.5	5.5	5.1				0.0	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	14.8	13.7	14.7				0.0	0.0	13.1			
LnGrp Delay(d),s/veh	35.0	35.7	35.3				0.0	0.0	27.5			
LnGrp LOS	D	D	D						C			
Approach Vol, veh/h		1390						481				
Approach Delay, s/veh		35.3						27.5				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				69.0		61.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				63.0		55.0		
Max Q Clear Time (g_c+I1), s				29.2		32.9		
Green Ext Time (p_c), s				3.0		8.0		

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1324	63	0	0	0	0	0	0	190	557	0
Future Volume (veh/h)	0	1324	63	0	0	0	0	0	0	190	557	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1394	66							200	586	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2112	100							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5920	269							4503	1676	0
Grp Volume(v), veh/h	0	1060	400							200	586	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	30.4	30.5							4.8	42.4	0.0
Cycle Q Clear(g_c), s	0.0	30.4	30.5							4.8	42.4	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.66	0.66							0.08	0.66	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.72	0.72							0.63	0.63	0.00
Uniform Delay (d), s/veh	0.0	49.2	49.2							27.2	42.6	0.0
Incr Delay (d2), s/veh	0.0	1.5	4.0							0.0	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.4	14.5							2.0	20.3	0.0
LnGrp Delay(d),s/veh	0.0	50.7	53.3							27.2	45.1	0.0
LnGrp LOS		D	D							C	D	
Approach Vol, veh/h		1460									786	
Approach Delay, s/veh		51.4									40.5	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		32.5		44.4				
Green Ext Time (p_c), s		6.6		3.9				

Intersection Summary	
HCM 2010 Ctrl Delay	47.6
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018

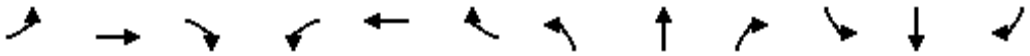
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	878	0	0	0	0	0	474	336	23	0	0
Future Volume (vph)	88	878	0	0	0	0	0	474	336	23	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4556						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.36		
Satd. Flow (perm)		4556						1676	1425	610		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	93	924	0	0	0	0	0	499	354	24	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	1017	0	0	0	0	0	499	337	24	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		48.0						70.0	70.0	70.0		
Effective Green, g (s)		48.0						70.0	70.0	70.0		
Actuated g/C Ratio		0.37						0.54	0.54	0.54		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		1682						902	767	328		
v/s Ratio Prot								c0.30				
v/s Ratio Perm		0.22							0.24	0.04		
v/c Ratio		0.60						0.55	0.44	0.07		
Uniform Delay, d1		33.3						19.7	18.1	14.4		
Progression Factor		0.22						1.00	1.00	1.70		
Incremental Delay, d2		1.3						2.4	1.8	0.1		
Delay (s)		8.5						22.2	20.0	24.6		
Level of Service		A						C	B	C		
Approach Delay (s)		8.5			0.0			21.2			24.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1187	395	0	0	0	0	960	91	171	411	0
Future Volume (vph)	332	1187	395	0	0	0	0	960	91	171	411	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		5349						4473			3109	
Flt Permitted		0.99						1.00			0.50	
Satd. Flow (perm)		5349						4473			1583	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	349	1249	416	0	0	0	0	1011	96	180	433	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1978	0	0	0	0	0	1099	0	0	613	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		55.7						52.7			61.7	
Effective Green, g (s)		55.7						52.7			61.7	
Actuated g/C Ratio		0.43						0.41			0.47	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2291						1813			810	
v/s Ratio Prot								0.25			c0.03	
v/s Ratio Perm		0.37									c0.33	
v/c Ratio		0.86						0.61			1.19dl	
Uniform Delay, d1		33.7						30.5			28.0	
Progression Factor		1.02						1.00			2.07	
Incremental Delay, d2		4.4						1.5			0.6	
Delay (s)		38.6						32.0			58.7	
Level of Service		D						C			E	
Approach Delay (s)		38.6			0.0			32.0			58.7	
Approach LOS		D			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
915: SW 1 Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1093	356	0	0	0	0	0	0	154	794	0
Future Volume (veh/h)	0	1093	356	0	0	0	0	0	0	154	794	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1660	1710							1710	1660	0
Adj Flow Rate, veh/h	0	1151	375							162	836	0
Adj No. of Lanes	0	3	0							0	2	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	1588	517							242	1086	0
Arrive On Green	0.00	0.15	0.15							0.14	0.14	0.00
Sat Flow, veh/h	0	3534	1103							470	2551	0
Grp Volume(v), veh/h	0	1027	499							516	482	0
Grp Sat Flow(s),veh/h/ln	0	1511	1466							1510	1435	0
Q Serve(g_s), s	0.0	42.1	42.1							42.3	42.0	0.0
Cycle Q Clear(g_c), s	0.0	42.1	42.1							42.8	42.0	0.0
Prop In Lane	0.00		0.75							0.31		0.00
Lane Grp Cap(c), veh/h	0	1418	688							699	629	0
V/C Ratio(X)	0.00	0.72	0.72							0.74	0.77	0.00
Avail Cap(c_a), veh/h	0	1418	688							699	629	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.38	0.38							0.69	0.69	0.00
Uniform Delay (d), s/veh	0.0	46.9	46.9							49.5	49.2	0.0
Incr Delay (d2), s/veh	0.0	1.3	2.6							4.8	6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.9	17.6							18.9	17.8	0.0
LnGrp Delay(d),s/veh	0.0	48.2	49.5							54.3	55.3	0.0
LnGrp LOS		D	D							D	E	
Approach Vol, veh/h		1526									998	
Approach Delay, s/veh		48.6									54.8	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		67.0		63.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		61.0		57.0				
Max Q Clear Time (g_c+I1), s		44.1		44.8				
Green Ext Time (p_c), s		4.4		2.1				

Intersection Summary	
HCM 2010 Ctrl Delay	51.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
916: S Miami Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	958	0	0	0	0	0	758	56	0	0	0
Future Volume (veh/h)	289	958	0	0	0	0	0	758	56	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1710	1660	0				0	1660	1710			
Adj Flow Rate, veh/h	304	1008	0				0	798	59			
Adj No. of Lanes	0	3	0				0	3	0			
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	552	1741	0				0	1558	115			
Arrive On Green	0.18	0.18	0.00				0.00	0.36	0.36			
Sat Flow, veh/h	926	3324	0				0	4458	317			
Grp Volume(v), veh/h	448	864	0				0	559	298			
Grp Sat Flow(s),veh/h/ln	1364	1375	0				0	1511	1604			
Q Serve(g_s), s	39.2	37.4	0.0				0.0	18.8	19.0			
Cycle Q Clear(g_c), s	39.2	37.4	0.0				0.0	18.8	19.0			
Prop In Lane	0.68		0.00				0.00		0.20			
Lane Grp Cap(c), veh/h	792	1502	0				0	1092	580			
V/C Ratio(X)	0.57	0.58	0.00				0.00	0.51	0.51			
Avail Cap(c_a), veh/h	792	1502	0				0	1092	580			
HCM Platoon Ratio	0.33	0.33	1.00				1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	40.3	39.5	0.0				0.0	32.5	32.5			
Incr Delay (d2), s/veh	1.8	1.0	0.0				0.0	1.7	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.2	14.5	0.0				0.0	8.1	8.9			
LnGrp Delay(d),s/veh	42.1	40.5	0.0				0.0	34.2	35.8			
LnGrp LOS	D	D						C	D			
Approach Vol, veh/h		1312						857				
Approach Delay, s/veh		41.0						34.8				
Approach LOS		D						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		53.0		77.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		47.0		71.0				
Max Q Clear Time (g_c+I1), s		21.0		41.2				
Green Ext Time (p_c), s		6.2		11.0				

Intersection Summary	
HCM 2010 Ctrl Delay	38.5
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
920: S Miami Ave & SW 7 St

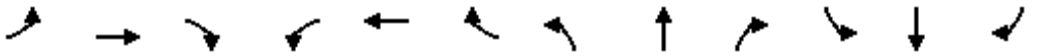
12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1101	124	475	572	0	0	0	0
Future Volume (vph)	0	0	0	0	1101	124	475	572	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0		6.0	6.0				
Lane Util. Factor					0.91		0.91	0.91				
Frt					0.98		1.00	1.00				
Flt Protected					1.00		0.95	0.99				
Satd. Flow (prot)					4463		1435	2993				
Flt Permitted					1.00		0.95	0.99				
Satd. Flow (perm)					4463		1435	2993				
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	1159	131	500	602	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	19	14	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1280	0	341	728	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA		Perm	NA				
Protected Phases					4			2				
Permitted Phases							2					
Actuated Green, G (s)					59.0		59.0	59.0				
Effective Green, g (s)					59.0		59.0	59.0				
Actuated g/C Ratio					0.45		0.45	0.45				
Clearance Time (s)					6.0		6.0	6.0				
Vehicle Extension (s)					1.0		1.0	1.0				
Lane Grp Cap (vph)					2025		651	1358				
v/s Ratio Prot					c0.29							
v/s Ratio Perm							0.24	0.24				
v/c Ratio					0.63		0.52	0.54				
Uniform Delay, d1					27.2		25.4	25.6				
Progression Factor					1.00		0.65	0.67				
Incremental Delay, d2					1.5		2.6	1.3				
Delay (s)					28.7		19.2	18.6				
Level of Service					C		B	B				
Approach Delay (s)		0.0			28.7			18.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
921: SW 1 Ave & SW 7 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	232	1344	0	0	0	0	0	716	317
Future Volume (vph)	0	0	0	232	1344	0	0	0	0	0	716	317
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0						6.0	6.0
Lane Util. Factor					0.91						0.91	0.91
Frt					1.00						0.99	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					4499						3003	1284
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					4499						3003	1284
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	244	1415	0	0	0	0	0	754	334
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	2	16
Lane Group Flow (vph)	0	0	0	0	1641	0	0	0	0	0	785	285
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	Perm
Protected Phases					2						8	
Permitted Phases				2								8
Actuated Green, G (s)					67.0						51.0	51.0
Effective Green, g (s)					67.0						51.0	51.0
Actuated g/C Ratio					0.52						0.39	0.39
Clearance Time (s)					6.0						6.0	6.0
Vehicle Extension (s)					1.0						1.0	1.0
Lane Grp Cap (vph)					2318						1178	503
v/s Ratio Prot											c0.26	
v/s Ratio Perm					0.36							0.22
v/c Ratio					0.71						0.67	0.57
Uniform Delay, d1					24.0						32.5	30.9
Progression Factor					1.05						1.00	1.00
Incremental Delay, d2					1.5						3.0	4.6
Delay (s)					26.8						35.5	35.4
Level of Service					C						D	D
Approach Delay (s)		0.0			26.8			0.0			35.5	
Approach LOS		A			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	86	1338	237	362	930	0	0	496	365
Future Volume (veh/h)	0	0	0	86	1338	237	362	930	0	0	496	365
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				91	1408	249	381	979	0	0	522	384
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				92	1510	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				230	3776	691	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				651	543	554	381	979	0	0	474	432
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				51.2	46.0	46.1	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				51.2	46.0	46.1	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				659	604	615	359	1601	0	0	449	408
V/C Ratio(X)				0.99	0.90	0.90	1.06	0.61	0.00	0.00	1.06	1.06
Avail Cap(c_a), veh/h				659	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.66	0.66	0.66	0.76	0.76	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.1	53.8	53.9	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				25.6	13.5	13.5	58.2	1.3	0.0	0.0	58.2	60.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				28.1	21.5	22.0	18.6	0.3	0.0	0.0	23.3	21.5
LnGrp Delay(d),s/veh				81.7	67.3	67.4	86.1	1.3	0.0	0.0	104.7	106.9
LnGrp LOS				F	E	E	F	A			F	F
Approach Vol, veh/h					1748			1360			906	
Approach Delay, s/veh					72.7			25.1			105.7	
Approach LOS					E			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		53.2		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.0			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.0
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	820	334	320	242	0	0	0	0
Future Volume (veh/h)	0	0	0	23	820	334	320	242	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				24	863	352	337	255	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				63	2026	815	437	400	0			
Arrive On Green				0.22	0.22	0.22	0.08	0.08	0.00			
Sat Flow, veh/h				51	3039	1223	1581	1660	0			
Grp Volume(v), veh/h				472	394	373	337	255	0			
Grp Sat Flow(s),veh/h/ln				1644	1375	1295	1581	1660	0			
Q Serve(g_s), s				0.0	32.1	32.2	27.4	19.4	0.0			
Cycle Q Clear(g_c), s				31.8	32.1	32.2	27.4	19.4	0.0			
Prop In Lane				0.05		0.94	1.00		0.00			
Lane Grp Cap(c), veh/h				1125	916	863	437	400	0			
V/C Ratio(X)				0.42	0.43	0.43	0.77	0.64	0.00			
Avail Cap(c_a), veh/h				1125	916	863	736	715	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.10	0.10	0.10	0.81	0.81	0.00			
Uniform Delay (d), s/veh				29.3	29.4	29.5	58.0	54.3	0.0			
Incr Delay (d2), s/veh				0.1	0.2	0.2	1.8	1.0	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				14.7	12.3	11.6	12.3	9.0	0.0			
LnGrp Delay(d),s/veh				29.4	29.6	29.6	59.8	55.3	0.0			
LnGrp LOS				C	C	C	E	E				
Approach Vol, veh/h					1239			592				
Approach Delay, s/veh					29.5			57.9				
Approach LOS					C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		92.7		37.3				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		62.0		56.0				
Max Q Clear Time (g_c+I1), s		34.2		29.4				
Green Ext Time (p_c), s		3.1		1.9				

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	196	944	266	36	285	1030
Future Volume (vph)	196	944	266	36	285	1030
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.90	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)	1449	3048	3128		2887	1297
Flt Permitted	0.95	1.00	1.00		0.98	1.00
Satd. Flow (perm)	1449	3048	3128		2887	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	206	994	280	38	300	1084
RTOR Reduction (vph)	105	64	8	0	0	0
Lane Group Flow (vph)	80	951	310	0	842	542
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	41.5	41.5	12.8		55.0	55.0
Effective Green, g (s)	41.5	41.5	12.8		55.0	55.0
Actuated g/C Ratio	0.32	0.32	0.10		0.42	0.42
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	462	973	307		1221	548
v/s Ratio Prot			c0.10		0.29	
v/s Ratio Perm	0.06	0.31				c0.42
v/c Ratio	0.17	0.98	1.01		0.90dr	0.99
Uniform Delay, d1	31.9	43.8	58.6		30.5	37.2
Progression Factor	0.48	0.62	1.00		1.00	1.00
Incremental Delay, d2	0.7	22.5	53.8		1.6	35.2
Delay (s)	16.1	49.7	112.4		32.2	72.4
Level of Service	B	D	F		C	E
Approach Delay (s)		44.6	112.4		48.0	
Approach LOS		D	F		D	

Intersection Summary			
HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
925: SW 8 AVE & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	62	1825	98	106	215	0	0	208	68
Future Volume (veh/h)	0	0	0	62	1825	98	106	215	0	0	208	68
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1937	1900
Adj Flow Rate, veh/h				65	1921	103	112	226	0	0	219	72
Adj No. of Lanes				0	3	0	0	1	0	0	1	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				79	2467	136	189	363	0	0	570	188
Arrive On Green				0.50	0.50	0.49	0.82	0.82	0.00	0.00	0.41	0.41
Sat Flow, veh/h				157	4935	273	364	888	0	0	1397	459
Grp Volume(v), veh/h				767	637	685	338	0	0	0	0	291
Grp Sat Flow(s),veh/h/ln				1855	1695	1815	1253	0	0	0	0	1856
Q Serve(g_s), s				42.3	36.1	36.4	10.7	0.0	0.0	0.0	0.0	13.2
Cycle Q Clear(g_c), s				42.3	36.1	36.4	23.9	0.0	0.0	0.0	0.0	13.2
Prop In Lane				0.08		0.15	0.33		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				927	848	907	551	0	0	0	0	758
V/C Ratio(X)				0.83	0.75	0.76	0.61	0.00	0.00	0.00	0.00	0.38
Avail Cap(c_a), veh/h				927	848	907	551	0	0	0	0	758
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.96	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				25.6	24.0	24.2	9.5	0.0	0.0	0.0	0.0	24.9
Incr Delay (d2), s/veh				8.4	6.1	5.8	4.8	0.0	0.0	0.0	0.0	1.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.7	18.2	19.6	7.1	0.0	0.0	0.0	0.0	7.1
LnGrp Delay(d),s/veh				33.9	30.1	30.0	14.3	0.0	0.0	0.0	0.0	26.4
LnGrp LOS				C	C	C	B					C
Approach Vol, veh/h					2089			338			291	
Approach Delay, s/veh					31.5			14.3			26.4	
Approach LOS					C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		65.0		55.0				55.0
Change Period (Y+Rc), s		6.0		6.0				6.0
Max Green Setting (Gmax), s		59.0		49.0				49.0
Max Q Clear Time (g_c+I1), s		44.3		25.9				15.2
Green Ext Time (p_c), s		2.1		1.2				0.9

Intersection Summary		
HCM 2010 Ctrl Delay		28.8
HCM 2010 LOS		C

Synchro 2045 Build B-1

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2279	46	0	0	0	0	0	0	216	623	0
Future Volume (veh/h)	0	2279	46	0	0	0	0	0	0	216	623	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	2399	48							227	656	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2653	53							2169	740	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	6099	117							4503	1676	0
Grp Volume(v), veh/h	0	1769	678							227	656	0
Grp Sat Flow(s),veh/h/ln	0	1442	1656							1501	1676	0
Q Serve(g_s), s	0.0	48.3	48.3							5.3	46.1	0.0
Cycle Q Clear(g_c), s	0.0	48.3	48.3							5.3	46.1	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1957	749							2169	740	0
V/C Ratio(X)	0.00	0.90	0.90							0.10	0.89	0.00
Avail Cap(c_a), veh/h	0	1957	749							2169	740	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.24	0.24							0.69	0.69	0.00
Uniform Delay (d), s/veh	0.0	48.5	48.5							30.9	48.3	0.0
Incr Delay (d2), s/veh	0.0	2.0	4.9							0.1	10.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.6	23.2							2.2	23.6	0.0
LnGrp Delay(d),s/veh	0.0	50.4	53.4							30.9	59.0	0.0
LnGrp LOS		D	D							C	E	
Approach Vol, veh/h		2447									883	
Approach Delay, s/veh		51.3									51.8	
Approach LOS		D									D	

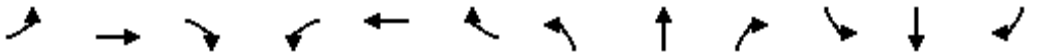
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		61.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		53.0				
Max Q Clear Time (g_c+I1), s		50.3		48.1				
Green Ext Time (p_c), s		3.4		2.0				

Intersection Summary	
HCM 2010 Ctrl Delay	51.4
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/11/2018



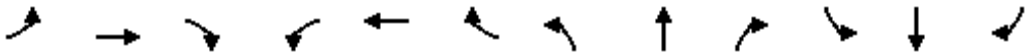
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1344	0	0	0	0	0	305	389	10	0	0
Future Volume (vph)	43	1344	0	0	0	0	0	305	389	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4570						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.49		
Satd. Flow (perm)		4570						1676	1425	815		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	1415	0	0	0	0	0	321	409	11	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	14	0	0	0
Lane Group Flow (vph)	0	1460	0	0	0	0	0	321	395	11	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		52.0						56.0	56.0	56.0		
Effective Green, g (s)		52.0						56.0	56.0	56.0		
Actuated g/C Ratio		0.43						0.47	0.47	0.47		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		1980						782	665	380		
v/s Ratio Prot								0.19				
v/s Ratio Perm		0.32							c0.28	0.01		
v/c Ratio		0.74						0.41	0.59	0.03		
Uniform Delay, d1		28.3						21.1	23.6	17.3		
Progression Factor		0.30						1.00	1.00	1.73		
Incremental Delay, d2		1.1						1.6	3.9	0.0		
Delay (s)		9.6						22.7	27.5	30.0		
Level of Service		A						C	C	C		
Approach Delay (s)		9.6			0.0			25.4			30.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Future Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		5432						4475			3097	
Flt Permitted		0.99						1.00			0.53	
Satd. Flow (perm)		5432						4475			1667	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	518	2216	333	0	0	0	0	1216	111	319	535	0
RTOR Reduction (vph)	0	18	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3049	0	0	0	0	0	1318	0	0	854	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		53.7						44.7			53.7	
Effective Green, g (s)		53.7						44.7			53.7	
Actuated g/C Ratio		0.45						0.37			0.45	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2430						1666			805	
v/s Ratio Prot								0.29			c0.04	
v/s Ratio Perm		0.56									c0.43	
v/c Ratio		1.25						0.79			3.19dl	
Uniform Delay, d1		33.1						33.5			33.1	
Progression Factor		1.17						1.00			0.27	
Incremental Delay, d2		118.0						3.9			37.5	
Delay (s)		156.6						37.4			46.4	
Level of Service		F						D			D	
Approach Delay (s)		156.6			0.0			37.4			46.4	
Approach LOS		F			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	108.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Future Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				80	1054	256	348	1385	0	0	774	218
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				168	2338	590	363	1823	0	0	831	234
Arrive On Green				0.22	0.22	0.22	0.37	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				253	3521	888	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				522	435	433	348	1385	0	0	502	490
Grp Sat Flow(s),veh/h/ln				1648	1511	1503	1581	1577	0	0	1577	1539
Q Serve(g_s), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Cycle Q Clear(g_c), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				1094	1003	998	363	1823	0	0	539	526
V/C Ratio(X)				0.48	0.43	0.43	0.96	0.76	0.00	0.00	0.93	0.93
Avail Cap(c_a), veh/h				1094	1003	998	372	1823	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.51	0.51	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.7	27.4	27.4	35.0	0.0	0.0	0.0	38.1	38.1
Incr Delay (d2), s/veh				1.1	1.0	1.0	23.1	1.6	0.0	0.0	25.1	25.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	12.8	12.8	13.3	0.4	0.0	0.0	19.8	19.4
LnGrp Delay(d),s/veh				29.8	28.4	28.4	58.0	1.6	0.0	0.0	63.2	63.6
LnGrp LOS				C	C	C	E	A			E	E
Approach Vol, veh/h					1390			1733			992	
Approach Delay, s/veh					28.9			12.9			63.4	
Approach LOS					C			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		87.0		75.3			28.3	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		35.1		2.0			22.3	38.9
Green Ext Time (p_c), s		1.9		4.9			0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	498	89	223	125	0	0	0	0
Future Volume (veh/h)	0	0	0	10	498	89	223	125	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				11	524	94	235	132	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				65	2705	472	334	287	0			
Arrive On Green				0.24	0.24	0.24	0.06	0.06	0.00			
Sat Flow, veh/h				46	3721	650	1581	1660	0			
Grp Volume(v), veh/h				233	194	202	235	132	0			
Grp Sat Flow(s),veh/h/ln				1646	1375	1396	1581	1660	0			
Q Serve(g_s), s				0.0	13.5	13.9	17.7	9.2	0.0			
Cycle Q Clear(g_c), s				13.4	13.5	13.9	17.7	9.2	0.0			
Prop In Lane				0.05		0.47	1.00		0.00			
Lane Grp Cap(c), veh/h				1228	999	1015	334	287	0			
V/C Ratio(X)				0.19	0.19	0.20	0.70	0.46	0.00			
Avail Cap(c_a), veh/h				1228	999	1015	837	816	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.26	0.26	0.26	0.92	0.92	0.00			
Uniform Delay (d), s/veh				17.6	17.6	17.7	55.1	51.1	0.0			
Incr Delay (d2), s/veh				0.1	0.1	0.1	1.9	0.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				6.2	5.2	5.4	7.9	4.3	0.0			
LnGrp Delay(d),s/veh				17.6	17.7	17.8	57.0	51.9	0.0			
LnGrp LOS				B	B	B	E	D				
Approach Vol, veh/h					629			367				
Approach Delay, s/veh					17.7			55.2				
Approach LOS					B			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		93.2		26.8				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		49.0		59.0				
Max Q Clear Time (g_c+I1), s		15.9		19.7				
Green Ext Time (p_c), s		1.4		1.1				

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	179	542	285	15	375	544
Future Volume (vph)	179	542	285	15	375	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.94	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	1449	3046	3161		2968	1297
Flt Permitted	0.95	1.00	1.00		0.97	1.00
Satd. Flow (perm)	1449	3046	3161		2968	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	188	571	300	16	395	573
RTOR Reduction (vph)	102	62	3	0	0	0
Lane Group Flow (vph)	67	528	313	0	659	309
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	47.5	47.5	16.2		35.6	35.6
Effective Green, g (s)	47.5	47.5	16.2		35.6	35.6
Actuated g/C Ratio	0.40	0.40	0.13		0.30	0.30
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	573	1205	426		880	384
v/s Ratio Prot			c0.10		0.22	
v/s Ratio Perm	0.05	0.17				c0.24
v/c Ratio	0.12	0.44	0.73		0.75	0.80
Uniform Delay, d1	23.0	26.5	49.8		38.2	39.0
Progression Factor	0.71	0.54	1.00		1.00	1.00
Incremental Delay, d2	0.4	1.1	6.1		3.5	11.6
Delay (s)	16.7	15.3	55.9		41.7	50.6
Level of Service	B	B	E		D	D
Approach Delay (s)		15.6	55.9		44.5	
Approach LOS		B	E		D	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1609	77	0	0	0	0	0	0	220	654	0
Future Volume (veh/h)	0	1609	77	0	0	0	0	0	0	220	654	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1694	81							232	688	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2111	101							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5917	272							4503	1676	0
Grp Volume(v), veh/h	0	1289	486							232	688	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	37.7	37.7							5.6	50.9	0.0
Cycle Q Clear(g_c), s	0.0	37.7	37.7							5.6	50.9	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.80	0.80							0.09	0.77	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.52	0.52							0.44	0.44	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.4							27.5	46.1	0.0
Incr Delay (d2), s/veh	0.0	2.3	5.9							0.0	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.4	18.0							2.3	24.4	0.0
LnGrp Delay(d),s/veh	0.0	54.7	58.3							27.5	49.1	0.0
LnGrp LOS		D	E							C	D	
Approach Vol, veh/h		1775									920	
Approach Delay, s/veh		55.7									43.6	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		39.7		52.9				
Green Ext Time (p_c), s		5.4		4.3				

Intersection Summary	
HCM 2010 Ctrl Delay	51.6
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/11/2018

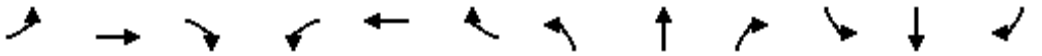
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1060	0	0	0	0	0	553	392	27	0	0
Future Volume (vph)	105	1060	0	0	0	0	0	553	392	27	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4556						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.30		
Satd. Flow (perm)		4556						1676	1425	505		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	1116	0	0	0	0	0	582	413	28	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	1227	0	0	0	0	0	582	401	28	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		48.0						70.0	70.0	70.0		
Effective Green, g (s)		48.0						70.0	70.0	70.0		
Actuated g/C Ratio		0.37						0.54	0.54	0.54		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		1682						902	767	271		
v/s Ratio Prot								c0.35				
v/s Ratio Perm		0.27							0.28	0.06		
v/c Ratio		0.73						0.65	0.52	0.10		
Uniform Delay, d1		35.4						21.2	19.3	14.7		
Progression Factor		0.20						1.00	1.00	2.10		
Incremental Delay, d2		1.8						3.6	2.5	0.1		
Delay (s)		8.8						24.8	21.8	30.9		
Level of Service		A						C	C	C		
Approach Delay (s)		8.8			0.0			23.5			30.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Future Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		5350						4473			3109	
Flt Permitted		0.99						1.00			0.51	
Satd. Flow (perm)		5350						4473			1601	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	416	1486	494	0	0	0	0	1179	112	211	507	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	2360	0	0	0	0	0	1283	0	0	718	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		55.7						52.7			61.7	
Effective Green, g (s)		55.7						52.7			61.7	
Actuated g/C Ratio		0.43						0.41			0.47	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2292						1813			817	
v/s Ratio Prot								0.29			c0.03	
v/s Ratio Perm		0.44									c0.38	
v/c Ratio		1.03						0.71			1.80dl	
Uniform Delay, d1		37.1						32.2			30.8	
Progression Factor		0.97						1.00			2.06	
Incremental Delay, d2		26.1						2.4			1.4	
Delay (s)		62.3						34.6			64.7	
Level of Service		E						C			E	
Approach Delay (s)		62.3			0.0			34.6			64.7	
Approach LOS		E			A			C			E	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Future Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				105	1651	293	447	1147	0	0	613	451
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				91	1512	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				227	3781	690	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				761	634	654	447	1147	0	0	557	507
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				660	604	615	359	1601	0	0	449	408
V/C Ratio(X)				1.15	1.05	1.06	1.24	0.72	0.00	0.00	1.24	1.24
Avail Cap(c_a), veh/h				660	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.49	0.49	0.49	0.64	0.64	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.4	56.4	56.4	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				78.3	39.5	43.5	124.0	1.8	0.0	0.0	125.9	128.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				38.1	28.4	29.6	25.2	0.4	0.0	0.0	31.8	29.2
LnGrp Delay(d),s/veh				134.7	95.9	99.9	151.9	1.8	0.0	0.0	172.4	174.6
LnGrp LOS				F	F	F	F	A			F	F
Approach Vol, veh/h					2049			1594			1064	
Approach Delay, s/veh					111.6			43.9			173.5	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		54.0		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.7			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	102.7
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	27	962	392	375	283	0	0	0	0
Future Volume (veh/h)	0	0	0	27	962	392	375	283	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				28	1013	413	395	298	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				61	1907	770	498	465	0			
Arrive On Green				0.21	0.21	0.21	0.09	0.09	0.00			
Sat Flow, veh/h				51	3037	1226	1581	1660	0			
Grp Volume(v), veh/h				555	463	436	395	298	0			
Grp Sat Flow(s),veh/h/ln				1644	1375	1294	1581	1660	0			
Q Serve(g_s), s				7.3	39.1	39.1	32.1	22.5	0.0			
Cycle Q Clear(g_c), s				38.8	39.1	39.1	32.1	22.5	0.0			
Prop In Lane				0.05		0.95	1.00		0.00			
Lane Grp Cap(c), veh/h				1061	863	813	498	465	0			
V/C Ratio(X)				0.52	0.54	0.54	0.79	0.64	0.00			
Avail Cap(c_a), veh/h				1061	863	813	736	715	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.09	0.09	0.09	0.72	0.72	0.00			
Uniform Delay (d), s/veh				34.5	34.7	34.7	57.1	52.7	0.0			
Incr Delay (d2), s/veh				0.2	0.2	0.2	2.2	0.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				17.9	15.0	14.1	14.4	10.5	0.0			
LnGrp Delay(d),s/veh				34.7	34.9	34.9	59.2	53.5	0.0			
LnGrp LOS				C	C	C	E	D				
Approach Vol, veh/h					1454			693				
Approach Delay, s/veh					34.8			56.8				
Approach LOS					C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		87.6		42.4				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		62.0		56.0				
Max Q Clear Time (g_c+I1), s		41.1		34.1				
Green Ext Time (p_c), s		3.8		2.3				

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/11/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	231	1106	312	42	331	1208
Future Volume (vph)	231	1106	312	42	331	1208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.90	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)	1449	3048	3129		2886	1297
Flt Permitted	0.95	1.00	1.00		0.98	1.00
Satd. Flow (perm)	1449	3048	3129		2886	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	243	1164	328	44	348	1272
RTOR Reduction (vph)	106	64	8	0	0	0
Lane Group Flow (vph)	113	1124	364	0	984	636
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	41.5	41.5	12.8		55.0	55.0
Effective Green, g (s)	41.5	41.5	12.8		55.0	55.0
Actuated g/C Ratio	0.32	0.32	0.10		0.42	0.42
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	462	973	308		1221	548
v/s Ratio Prot			c0.12		0.34	
v/s Ratio Perm	0.08	0.37				c0.49
v/c Ratio	0.24	1.16	1.18		1.06dr	1.16
Uniform Delay, d1	32.7	44.2	58.6		32.8	37.5
Progression Factor	0.81	0.72	1.00		1.00	1.00
Incremental Delay, d2	1.1	79.9	109.9		4.0	91.1
Delay (s)	27.6	112.0	168.5		36.8	128.6
Level of Service	C	F	F		D	F
Approach Delay (s)		98.9	168.5		72.8	
Approach LOS		F	F		E	

Intersection Summary			
HCM 2000 Control Delay	94.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

HCS 2045 Build B-2

Northbound analysis results match Build B-1

Southbound analysis results match No Build

Synchro 2045 Build B-2

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1386	623	0
Future Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1386	623	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	2399	48							1459	656	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2653	53							2169	740	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	6099	117							4503	1676	0
Grp Volume(v), veh/h	0	1769	678							1459	656	0
Grp Sat Flow(s),veh/h/ln	0	1442	1656							1501	1676	0
Q Serve(g_s), s	0.0	48.3	48.3							37.2	46.1	0.0
Cycle Q Clear(g_c), s	0.0	48.3	48.3							37.2	46.1	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1957	749							2169	740	0
V/C Ratio(X)	0.00	0.90	0.90							0.67	0.89	0.00
Avail Cap(c_a), veh/h	0	1957	749							2169	740	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.24	0.24							0.20	0.20	0.00
Uniform Delay (d), s/veh	0.0	48.5	48.5							44.5	48.3	0.0
Incr Delay (d2), s/veh	0.0	2.0	4.9							0.3	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.6	23.2							15.6	22.1	0.0
LnGrp Delay(d),s/veh	0.0	50.4	53.4							44.8	51.8	0.0
LnGrp LOS		D	D							D	D	
Approach Vol, veh/h		2447									2115	
Approach Delay, s/veh		51.3									47.0	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		61.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		53.0				
Max Q Clear Time (g_c+I1), s		50.3		48.1				
Green Ext Time (p_c), s		3.4		3.5				

Intersection Summary	
HCM 2010 Ctrl Delay	49.3
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018

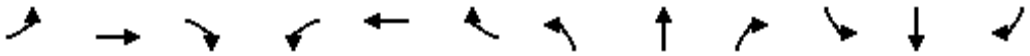
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	2514	0	0	0	0	0	305	389	10	0	0
Future Volume (vph)	43	2514	0	0	0	0	0	305	389	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4573						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.37		
Satd. Flow (perm)		4573						1676	1425	627		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	2646	0	0	0	0	0	321	409	11	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	0	2691	0	0	0	0	0	321	390	11	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		72.0						36.0	36.0	36.0		
Effective Green, g (s)		72.0						36.0	36.0	36.0		
Actuated g/C Ratio		0.60						0.30	0.30	0.30		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		2743						502	427	188		
v/s Ratio Prot								0.19				
v/s Ratio Perm		0.59							c0.27	0.02		
v/c Ratio		0.98						0.64	0.91	0.06		
Uniform Delay, d1		23.3						36.4	40.5	29.9		
Progression Factor		0.97						1.00	1.00	0.81		
Incremental Delay, d2		8.0						6.1	26.5	0.1		
Delay (s)		30.6						42.5	67.0	24.2		
Level of Service		C						D	E	C		
Approach Delay (s)		30.6			0.0			56.2			24.2	
Approach LOS		C			A			E			C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Future Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4274						4475			3097	
Flt Permitted		0.99						1.00			0.57	
Satd. Flow (perm)		4274						4475			1799	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	518	2216	333	0	0	0	0	1216	111	319	535	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3054	0	0	0	0	0	1318	0	0	854	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		61.7						30.7			45.7	
Effective Green, g (s)		61.7						30.7			45.7	
Actuated g/C Ratio		0.51						0.26			0.38	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2197						1144			804	
v/s Ratio Prot								c0.29			c0.10	
v/s Ratio Perm		0.71									0.31	
v/c Ratio		1.39						1.15			1.84dl	
Uniform Delay, d1		29.1						44.6			37.1	
Progression Factor		0.62						1.00			0.37	
Incremental Delay, d2		176.4						78.8			38.0	
Delay (s)		194.4						123.5			51.9	
Level of Service		F						F			D	
Approach Delay (s)		194.4			0.0			123.5			51.9	
Approach LOS		F			A			F			D	

Intersection Summary			
HCM 2000 Control Delay	153.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	132.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Future Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				80	1054	256	348	1385	0	0	774	218
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				168	2338	590	363	1823	0	0	831	234
Arrive On Green				0.22	0.22	0.22	0.37	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				253	3521	888	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				522	435	433	348	1385	0	0	502	490
Grp Sat Flow(s),veh/h/ln				1648	1511	1503	1581	1577	0	0	1577	1539
Q Serve(g_s), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Cycle Q Clear(g_c), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				1094	1003	998	363	1823	0	0	539	526
V/C Ratio(X)				0.48	0.43	0.43	0.96	0.76	0.00	0.00	0.93	0.93
Avail Cap(c_a), veh/h				1094	1003	998	372	1823	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.7	27.4	27.4	35.0	0.0	0.0	0.0	38.1	38.1
Incr Delay (d2), s/veh				1.1	1.0	1.0	6.7	0.3	0.0	0.0	25.1	25.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	12.8	12.8	11.7	0.1	0.0	0.0	19.8	19.4
LnGrp Delay(d),s/veh				29.8	28.4	28.4	41.7	0.3	0.0	0.0	63.2	63.6
LnGrp LOS				C	C	C	D	A			E	E
Approach Vol, veh/h					1390			1733			992	
Approach Delay, s/veh					28.9			8.6			63.4	
Approach LOS					C			A			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		87.0		75.3			28.3	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		35.1		2.0			22.3	38.9
Green Ext Time (p_c), s		1.9		4.9			0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	498	89	223	125	0	0	0	0
Future Volume (veh/h)	0	0	0	10	498	89	223	125	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				11	524	94	235	132	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				65	2705	472	334	287	0			
Arrive On Green				0.24	0.24	0.24	0.06	0.06	0.00			
Sat Flow, veh/h				46	3721	650	1581	1660	0			
Grp Volume(v), veh/h				233	194	202	235	132	0			
Grp Sat Flow(s),veh/h/ln				1646	1375	1396	1581	1660	0			
Q Serve(g_s), s				0.0	13.5	13.9	17.7	9.2	0.0			
Cycle Q Clear(g_c), s				13.4	13.5	13.9	17.7	9.2	0.0			
Prop In Lane				0.05		0.47	1.00		0.00			
Lane Grp Cap(c), veh/h				1228	999	1015	334	287	0			
V/C Ratio(X)				0.19	0.19	0.20	0.70	0.46	0.00			
Avail Cap(c_a), veh/h				1228	999	1015	837	816	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.26	0.26	0.26	0.73	0.73	0.00			
Uniform Delay (d), s/veh				17.6	17.6	17.7	55.1	51.1	0.0			
Incr Delay (d2), s/veh				0.1	0.1	0.1	1.5	0.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				6.2	5.2	5.4	7.9	4.3	0.0			
LnGrp Delay(d),s/veh				17.6	17.7	17.8	56.6	51.8	0.0			
LnGrp LOS				B	B	B	E	D				
Approach Vol, veh/h					629			367				
Approach Delay, s/veh					17.7			54.9				
Approach LOS					B			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		93.2		26.8				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		49.0		59.0				
Max Q Clear Time (g_c+I1), s		15.9		19.7				
Green Ext Time (p_c), s		1.4		1.1				

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	179	542	285	15	1545	544
Future Volume (vph)	179	542	285	15	1545	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1449	3046	3161		3087	1297
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1449	3046	3161		3087	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	188	571	300	16	1626	573
RTOR Reduction (vph)	84	84	4	0	0	0
Lane Group Flow (vph)	85	506	312	0	1683	516
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	21.5	21.5	11.8		66.0	66.0
Effective Green, g (s)	21.5	21.5	11.8		66.0	66.0
Actuated g/C Ratio	0.18	0.18	0.10		0.55	0.55
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	259	545	310		1697	713
v/s Ratio Prot			c0.10		c0.55	
v/s Ratio Perm	0.06	0.17				0.40
v/c Ratio	0.33	0.93	1.01		0.99	0.72
Uniform Delay, d1	43.0	48.5	54.1		26.7	20.2
Progression Factor	1.25	1.11	1.00		1.00	1.00
Incremental Delay, d2	3.3	24.2	53.1		19.8	3.6
Delay (s)	56.8	77.8	107.2		46.5	23.8
Level of Service	E	E	F		D	C
Approach Delay (s)		73.2	107.2		41.2	
Approach LOS		E	F		D	

Intersection Summary			
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1017	654	0
Future Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1017	654	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1694	81							1071	688	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2111	101							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5917	272							4503	1676	0
Grp Volume(v), veh/h	0	1289	486							1071	688	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	37.7	37.7							27.7	50.9	0.0
Cycle Q Clear(g_c), s	0.0	37.7	37.7							27.7	50.9	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.80	0.80							0.42	0.77	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.52	0.52							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.4							36.6	46.1	0.0
Incr Delay (d2), s/veh	0.0	2.3	5.9							0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.4	18.0							11.5	23.8	0.0
LnGrp Delay(d),s/veh	0.0	54.7	58.3							36.6	46.8	0.0
LnGrp LOS		D	E							D	D	
Approach Vol, veh/h		1775									1759	
Approach Delay, s/veh		55.7									40.6	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		39.7		52.9				
Green Ext Time (p_c), s		5.4		6.9				

Intersection Summary	
HCM 2010 Ctrl Delay	48.2
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018

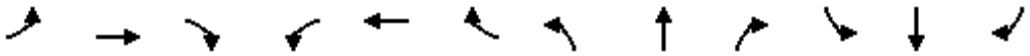
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1857	0	0	0	0	0	553	392	27	0	0
Future Volume (vph)	105	1857	0	0	0	0	0	553	392	27	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		4565						1676	1425	1593		
Flt Permitted		1.00						1.00	1.00	0.20		
Satd. Flow (perm)		4565						1676	1425	327		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	111	1955	0	0	0	0	0	582	413	28	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	15	0	0	0
Lane Group Flow (vph)	0	2066	0	0	0	0	0	582	398	28	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		64.0						54.0	54.0	54.0		
Effective Green, g (s)		64.0						54.0	54.0	54.0		
Actuated g/C Ratio		0.49						0.42	0.42	0.42		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		2247						696	591	135		
v/s Ratio Prot								c0.35				
v/s Ratio Perm		0.45							0.28	0.09		
v/c Ratio		0.92						0.84	0.67	0.21		
Uniform Delay, d1		30.6						34.0	30.9	24.3		
Progression Factor		1.12						1.00	1.00	1.73		
Incremental Delay, d2		5.6						11.4	6.0	0.5		
Delay (s)		40.0						45.5	36.9	42.5		
Level of Service		D						D	D	D		
Approach Delay (s)		40.0			0.0			41.9			42.5	
Approach LOS		D			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Future Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		4209						4473			3109	
Flt Permitted		0.99						1.00			0.52	
Satd. Flow (perm)		4209						4473			1642	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	416	1486	494	0	0	0	0	1179	112	211	507	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	2360	0	0	0	0	0	1283	0	0	718	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		62.7						39.7			57.0	
Effective Green, g (s)		62.7						39.7			57.0	
Actuated g/C Ratio		0.48						0.31			0.44	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2030						1365			844	
v/s Ratio Prot								c0.29			c0.07	
v/s Ratio Perm		0.56									0.30	
v/c Ratio		1.16						0.94			1.34dl	
Uniform Delay, d1		33.6						44.0			32.7	
Progression Factor		0.92						1.00			0.63	
Incremental Delay, d2		76.1						13.7			1.1	
Delay (s)		107.0						57.6			21.7	
Level of Service		F						E			C	
Approach Delay (s)		107.0			0.0			57.6			21.7	
Approach LOS		F			A			E			C	

Intersection Summary			
HCM 2000 Control Delay	78.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Future Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				105	1651	293	447	1147	0	0	613	451
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				91	1512	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				227	3781	690	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				761	634	654	447	1147	0	0	557	507
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				660	604	615	359	1601	0	0	449	408
V/C Ratio(X)				1.15	1.05	1.06	1.24	0.72	0.00	0.00	1.24	1.24
Avail Cap(c_a), veh/h				660	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.49	0.49	0.49	0.23	0.23	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.4	56.4	56.4	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				78.3	39.5	43.5	115.2	0.6	0.0	0.0	125.9	128.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				38.1	28.4	29.6	24.3	0.1	0.0	0.0	31.8	29.2
LnGrp Delay(d),s/veh				134.7	95.9	99.9	143.1	0.6	0.0	0.0	172.4	174.6
LnGrp LOS				F	F	F	F	A			F	F
Approach Vol, veh/h					2049			1594			1064	
Approach Delay, s/veh					111.6			40.6			173.5	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		54.0		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.7			0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		101.5
HCM 2010 LOS		F

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	27	962	392	375	283	0	0	0	0
Future Volume (veh/h)	0	0	0	27	962	392	375	283	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				28	1013	413	395	298	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				61	1907	770	498	465	0			
Arrive On Green				0.21	0.21	0.21	0.09	0.09	0.00			
Sat Flow, veh/h				51	3037	1226	1581	1660	0			
Grp Volume(v), veh/h				555	463	436	395	298	0			
Grp Sat Flow(s),veh/h/ln				1644	1375	1294	1581	1660	0			
Q Serve(g_s), s				7.3	39.1	39.1	32.1	22.5	0.0			
Cycle Q Clear(g_c), s				38.8	39.1	39.1	32.1	22.5	0.0			
Prop In Lane				0.05		0.95	1.00		0.00			
Lane Grp Cap(c), veh/h				1061	863	813	498	465	0			
V/C Ratio(X)				0.52	0.54	0.54	0.79	0.64	0.00			
Avail Cap(c_a), veh/h				1061	863	813	736	715	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.09	0.09	0.09	0.44	0.44	0.00			
Uniform Delay (d), s/veh				34.5	34.7	34.7	57.1	52.7	0.0			
Incr Delay (d2), s/veh				0.2	0.2	0.2	1.3	0.5	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				17.9	15.0	14.1	14.3	10.4	0.0			
LnGrp Delay(d),s/veh				34.7	34.9	34.9	58.4	53.2	0.0			
LnGrp LOS				C	C	C	E	D				
Approach Vol, veh/h					1454			693				
Approach Delay, s/veh					34.8			56.2				
Approach LOS					C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		87.6		42.4				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		62.0		56.0				
Max Q Clear Time (g_c+I1), s		41.1		34.1				
Green Ext Time (p_c), s		3.8		2.3				

Intersection Summary	
HCM 2010 Ctrl Delay	41.7
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	231	1106	312	42	1128	1208
Future Volume (vph)	231	1106	312	42	1128	1208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.96	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	1449	3048	3129		3003	1297
Flt Permitted	0.95	1.00	1.00		0.97	1.00
Satd. Flow (perm)	1449	3048	3129		3003	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	243	1164	328	44	1187	1272
RTOR Reduction (vph)	66	66	8	0	0	0
Lane Group Flow (vph)	153	1122	364	0	1683	776
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	38.5	38.5	11.8		59.0	59.0
Effective Green, g (s)	38.5	38.5	11.8		59.0	59.0
Actuated g/C Ratio	0.30	0.30	0.09		0.45	0.45
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	429	902	284		1362	588
v/s Ratio Prot			c0.12		0.56	
v/s Ratio Perm	0.11	0.37				c0.60
v/c Ratio	0.36	1.24	1.28		1.24	1.32
Uniform Delay, d1	36.0	45.8	59.1		35.5	35.5
Progression Factor	1.15	1.05	1.00		1.00	1.00
Incremental Delay, d2	1.9	117.6	150.7		112.6	155.6
Delay (s)	43.5	165.9	209.8		148.1	191.1
Level of Service	D	F	F		F	F
Approach Delay (s)		146.8	209.8		161.6	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	161.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCS 2045 Build B-3

Northbound analysis results match No Build

Southbound analysis results match No Build

Synchro 2045 Build B-3

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2279	46	0	0	0	0	0	0	772	623	0
Future Volume (veh/h)	0	2279	46	0	0	0	0	0	0	772	623	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	2399	48							813	656	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2653	53							2169	740	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	6099	117							4503	1676	0
Grp Volume(v), veh/h	0	1769	678							813	656	0
Grp Sat Flow(s),veh/h/ln	0	1442	1656							1501	1676	0
Q Serve(g_s), s	0.0	48.3	48.3							19.7	46.1	0.0
Cycle Q Clear(g_c), s	0.0	48.3	48.3							19.7	46.1	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1957	749							2169	740	0
V/C Ratio(X)	0.00	0.90	0.90							0.37	0.89	0.00
Avail Cap(c_a), veh/h	0	1957	749							2169	740	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.24	0.24							0.60	0.60	0.00
Uniform Delay (d), s/veh	0.0	48.5	48.5							37.0	48.3	0.0
Incr Delay (d2), s/veh	0.0	2.0	4.9							0.3	9.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.6	23.2							8.2	23.4	0.0
LnGrp Delay(d),s/veh	0.0	50.4	53.4							37.3	57.9	0.0
LnGrp LOS		D	D							D	E	
Approach Vol, veh/h		2447									1469	
Approach Delay, s/veh		51.3									46.5	
Approach LOS		D									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		61.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		53.0				
Max Q Clear Time (g_c+I1), s		50.3		48.1				
Green Ext Time (p_c), s		3.4		2.8				

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/12/2018

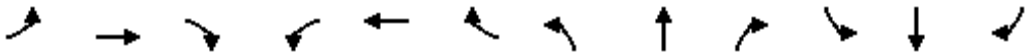
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1344	205	0	0	0	0	305	389	10	386	0
Future Volume (veh/h)	43	1344	205	0	0	0	0	305	389	10	386	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	45	1415	0				0	321	409	11	406	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	64	2139	0				0	726	617	255	726	0
Arrive On Green	0.47	0.47	0.00				0.00	0.43	0.43	0.14	0.14	0.00
Sat Flow, veh/h	137	4735	0				0	1676	1425	650	1676	0
Grp Volume(v), veh/h	548	912	0				0	321	409	11	406	0
Grp Sat Flow(s),veh/h/ln	1670	1526	0				0	1676	1425	650	1676	0
Q Serve(g_s), s	31.3	27.3	0.0				0.0	16.1	27.4	1.8	27.1	0.0
Cycle Q Clear(g_c), s	31.3	27.3	0.0				0.0	16.1	27.4	17.9	27.1	0.0
Prop In Lane	0.08		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	779	1424	0				0	726	617	255	726	0
V/C Ratio(X)	0.70	0.64	0.00				0.00	0.44	0.66	0.04	0.56	0.00
Avail Cap(c_a), veh/h	779	1424	0				0	726	617	255	726	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.4	24.3	0.0				0.0	23.8	27.0	44.1	40.7	0.0
Incr Delay (d2), s/veh	5.3	2.2	0.0				0.0	1.9	5.5	0.1	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	11.8	0.0				0.0	7.8	11.6	0.3	12.7	0.0
LnGrp Delay(d),s/veh	30.7	26.6	0.0				0.0	25.8	32.5	44.2	41.5	0.0
LnGrp LOS	C	C						C	C	D	D	
Approach Vol, veh/h		1460						730			417	
Approach Delay, s/veh		28.1						29.6			41.6	
Approach LOS		C						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				58.0		62.0		58.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				52.0		56.0		52.0
Max Q Clear Time (g_c+I1), s				29.4		33.3		29.1
Green Ext Time (p_c), s				2.7		9.4		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Future Volume (vph)	492	2105	316	0	0	0	0	1155	105	303	508	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		5432						4475			3097	
Flt Permitted		0.99						1.00			0.53	
Satd. Flow (perm)		5432						4475			1667	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	518	2216	333	0	0	0	0	1216	111	319	535	0
RTOR Reduction (vph)	0	18	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3049	0	0	0	0	0	1318	0	0	854	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		53.7						44.7			53.7	
Effective Green, g (s)		53.7						44.7			53.7	
Actuated g/C Ratio		0.45						0.37			0.45	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2430						1666			805	
v/s Ratio Prot								0.29			c0.04	
v/s Ratio Perm		0.56									c0.43	
v/c Ratio		1.25						0.79			3.19dl	
Uniform Delay, d1		33.1						33.5			33.1	
Progression Factor		1.01						1.00			0.25	
Incremental Delay, d2		117.9						3.9			37.5	
Delay (s)		151.4						37.4			45.7	
Level of Service		F						D			D	
Approach Delay (s)		151.4			0.0			37.4			45.7	
Approach LOS		F			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	105.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Future Volume (veh/h)	0	0	0	76	1001	243	331	1316	0	0	735	207
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				80	1054	256	348	1385	0	0	774	218
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				168	2338	590	363	1823	0	0	831	234
Arrive On Green				0.22	0.22	0.22	0.37	1.00	0.00	0.00	0.34	0.34
Sat Flow, veh/h				253	3521	888	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				522	435	433	348	1385	0	0	502	490
Grp Sat Flow(s),veh/h/ln				1648	1511	1503	1581	1577	0	0	1577	1539
Q Serve(g_s), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Cycle Q Clear(g_c), s				33.1	29.8	29.8	20.3	0.0	0.0	0.0	36.9	36.9
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				1094	1003	998	363	1823	0	0	539	526
V/C Ratio(X)				0.48	0.43	0.43	0.96	0.76	0.00	0.00	0.93	0.93
Avail Cap(c_a), veh/h				1094	1003	998	372	1823	0	0	539	526
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.51	0.51	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.7	27.4	27.4	35.0	0.0	0.0	0.0	38.1	38.1
Incr Delay (d2), s/veh				1.1	1.0	1.0	23.1	1.6	0.0	0.0	25.1	25.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				15.5	12.8	12.8	13.3	0.4	0.0	0.0	19.8	19.4
LnGrp Delay(d),s/veh				29.8	28.4	28.4	58.0	1.6	0.0	0.0	63.2	63.6
LnGrp LOS				C	C	C	E	A			E	E
Approach Vol, veh/h					1390			1733			992	
Approach Delay, s/veh					28.9			12.9			63.4	
Approach LOS					C			B			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		87.0		75.3			28.3	47.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		40.0		68.0			23.0	* 41
Max Q Clear Time (g_c+I1), s		35.1		2.0			22.3	38.9
Green Ext Time (p_c), s		1.9		4.9			0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	396	1054	89	223	125	0	0	0	0
Future Volume (veh/h)	0	0	0	396	1054	89	223	125	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				417	1109	94	235	132	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				811	2098	179	332	286	0			
Arrive On Green				0.24	0.24	0.24	0.06	0.06	0.00			
Sat Flow, veh/h				1041	2883	245	1581	1660	0			
Grp Volume(v), veh/h				532	526	562	235	132	0			
Grp Sat Flow(s),veh/h/ln				1328	1375	1467	1581	1660	0			
Q Serve(g_s), s				42.1	40.0	40.0	17.7	9.2	0.0			
Cycle Q Clear(g_c), s				42.1	40.0	40.0	17.7	9.2	0.0			
Prop In Lane				0.78		0.17	1.00		0.00			
Lane Grp Cap(c), veh/h				1020	1001	1068	332	286	0			
V/C Ratio(X)				0.52	0.53	0.53	0.71	0.46	0.00			
Avail Cap(c_a), veh/h				1020	1001	1068	561	526	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.26	0.26	0.26	0.90	0.90	0.00			
Uniform Delay (d), s/veh				28.4	27.6	27.6	55.2	51.2	0.0			
Incr Delay (d2), s/veh				0.5	0.5	0.5	1.9	0.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				15.6	15.4	16.4	7.9	4.3	0.0			
LnGrp Delay(d),s/veh				28.9	28.1	28.1	57.0	52.0	0.0			
LnGrp LOS				C	C	C	E	D				
Approach Vol, veh/h					1620			367				
Approach Delay, s/veh					28.4			55.2				
Approach LOS					C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		93.3		26.7				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		70.0		38.0				
Max Q Clear Time (g_c+I1), s		44.1		19.7				
Green Ext Time (p_c), s		4.2		1.0				

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	735	542	285	15	375	544
Future Volume (vph)	735	542	285	15	375	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.94	0.85
Flt Protected	0.95	0.98	1.00		0.97	1.00
Satd. Flow (prot)	1449	2996	3161		2968	1297
Flt Permitted	0.95	0.98	1.00		0.97	1.00
Satd. Flow (perm)	1449	2996	3161		2968	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	774	571	300	16	395	573
RTOR Reduction (vph)	105	59	3	0	0	0
Lane Group Flow (vph)	336	845	313	0	659	309
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	50.2	50.2	15.2		33.9	33.9
Effective Green, g (s)	50.2	50.2	15.2		33.9	33.9
Actuated g/C Ratio	0.42	0.42	0.13		0.28	0.28
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	606	1253	400		838	366
v/s Ratio Prot			c0.10		0.22	
v/s Ratio Perm	0.23	0.28				c0.24
v/c Ratio	0.55	0.67	0.78		0.79	0.84
Uniform Delay, d1	26.4	28.3	50.8		39.7	40.6
Progression Factor	0.76	0.83	1.00		1.00	1.00
Incremental Delay, d2	3.2	2.6	9.2		4.9	16.1
Delay (s)	23.3	25.9	60.0		44.6	56.7
Level of Service	C	C	E		D	E
Approach Delay (s)		25.1	60.0		48.5	
Approach LOS		C	E		D	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1609	77	0	0	0	0	0	0	776	654	0
Future Volume (veh/h)	0	1609	77	0	0	0	0	0	0	776	654	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1694	81							817	688	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2111	101							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5917	272							4503	1676	0
Grp Volume(v), veh/h	0	1289	486							817	688	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	37.7	37.7							20.7	50.9	0.0
Cycle Q Clear(g_c), s	0.0	37.7	37.7							20.7	50.9	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.80	0.80							0.32	0.77	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.52	0.52							0.19	0.19	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.4							33.7	46.1	0.0
Incr Delay (d2), s/veh	0.0	2.3	5.9							0.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.4	18.0							8.6	24.0	0.0
LnGrp Delay(d),s/veh	0.0	54.7	58.3							33.8	47.5	0.0
LnGrp LOS		D	E							C	D	
Approach Vol, veh/h		1775									1505	
Approach Delay, s/veh		55.7									40.0	
Approach LOS		E									D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		39.7		52.9				
Green Ext Time (p_c), s		5.4		6.1				

Intersection Summary	
HCM 2010 Ctrl Delay	48.5
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
913: SW 3rd Ave & SW 8 St

12/12/2018

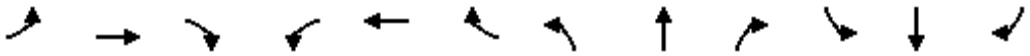
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1060	90	0	0	0	0	553	392	27	484	0
Future Volume (veh/h)	105	1060	90	0	0	0	0	553	392	27	484	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	111	1116	0				0	582	413	28	509	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	154	1656	0				0	877	745	192	877	0
Arrive On Green	0.38	0.38	0.00				0.00	0.52	0.52	0.17	0.17	0.00
Sat Flow, veh/h	401	4458	0				0	1676	1425	507	1676	0
Grp Volume(v), veh/h	459	768	0				0	582	413	28	509	0
Grp Sat Flow(s),veh/h/ln	1656	1526	0				0	1676	1425	507	1676	0
Q Serve(g_s), s	30.6	26.9	0.0				0.0	33.0	25.3	6.7	36.3	0.0
Cycle Q Clear(g_c), s	30.6	26.9	0.0				0.0	33.0	25.3	39.6	36.3	0.0
Prop In Lane	0.24		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	637	1174	0				0	877	745	192	877	0
V/C Ratio(X)	0.72	0.65	0.00				0.00	0.66	0.55	0.15	0.58	0.00
Avail Cap(c_a), veh/h	637	1174	0				0	877	745	192	877	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.0	32.9	0.0				0.0	22.6	20.8	57.3	40.7	0.0
Incr Delay (d2), s/veh	6.9	2.9	0.0				0.0	3.9	3.0	0.3	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	11.8	0.0				0.0	16.2	10.5	1.0	17.1	0.0
LnGrp Delay(d),s/veh	40.9	35.8	0.0				0.0	26.6	23.8	57.6	41.5	0.0
LnGrp LOS	D	D						C	C	E	D	
Approach Vol, veh/h		1227						995			537	
Approach Delay, s/veh		37.7						25.4			42.3	
Approach LOS		D						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				74.0		56.0		74.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				68.0		50.0		68.0
Max Q Clear Time (g_c+I1), s				35.0		32.6		41.6
Green Ext Time (p_c), s				4.7		6.7		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	34.2
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Future Volume (vph)	395	1412	469	0	0	0	0	1120	106	200	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.86						0.91			0.95	
Frt		0.97						0.99			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		5350						4473			3109	
Flt Permitted		0.99						1.00			0.51	
Satd. Flow (perm)		5350						4473			1601	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	416	1486	494	0	0	0	0	1179	112	211	507	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	2360	0	0	0	0	0	1283	0	0	718	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		55.7						52.7			61.7	
Effective Green, g (s)		55.7						52.7			61.7	
Actuated g/C Ratio		0.43						0.41			0.47	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2292						1813			817	
v/s Ratio Prot								0.29			c0.03	
v/s Ratio Perm		0.44									c0.38	
v/c Ratio		1.03						0.71			1.80dl	
Uniform Delay, d1		37.1						32.2			30.8	
Progression Factor		0.89						1.00			1.56	
Incremental Delay, d2		26.0						2.4			1.4	
Delay (s)		59.1						34.6			49.3	
Level of Service		E						C			D	
Approach Delay (s)		59.1			0.0			34.6			49.3	
Approach LOS		E			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Future Volume (veh/h)	0	0	0	100	1568	278	425	1090	0	0	582	428
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				105	1651	293	447	1147	0	0	613	451
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				91	1512	276	359	1601	0	0	494	363
Arrive On Green				0.13	0.13	0.13	0.38	1.00	0.00	0.00	0.28	0.28
Sat Flow, veh/h				227	3781	690	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				761	634	654	447	1147	0	0	557	507
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Cycle Q Clear(g_c), s				52.0	52.0	52.0	25.0	0.0	0.0	0.0	37.0	37.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				660	604	615	359	1601	0	0	449	408
V/C Ratio(X)				1.15	1.05	1.06	1.24	0.72	0.00	0.00	1.24	1.24
Avail Cap(c_a), veh/h				660	604	615	359	1601	0	0	449	408
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.49	0.49	0.49	0.64	0.64	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				56.4	56.4	56.4	27.9	0.0	0.0	0.0	46.5	46.5
Incr Delay (d2), s/veh				78.3	39.5	43.5	124.0	1.8	0.0	0.0	125.9	128.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				38.1	28.4	29.6	25.2	0.4	0.0	0.0	31.8	29.2
LnGrp Delay(d),s/veh				134.7	95.9	99.9	151.9	1.8	0.0	0.0	172.4	174.6
LnGrp LOS				F	F	F	F	A			F	F
Approach Vol, veh/h					2049			1594			1064	
Approach Delay, s/veh					111.6			43.9			173.5	
Approach LOS					F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		58.0		72.0			29.0	43.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		52.0		66.0			25.0	37.0
Max Q Clear Time (g_c+I1), s		54.0		2.0			27.0	39.0
Green Ext Time (p_c), s		0.0		3.7			0.0	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		102.7
HCM 2010 LOS		F

HCM 2010 Signalized Intersection Summary
923: SW 3rd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	511	1518	392	375	283	0	0	0	0
Future Volume (veh/h)	0	0	0	511	1518	392	375	283	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0			
Adj Flow Rate, veh/h				538	1598	413	395	298	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %				3	3	3	3	3	0			
Cap, veh/h				568	1688	433	486	452	0			
Arrive On Green				0.21	0.21	0.21	0.09	0.09	0.00			
Sat Flow, veh/h				825	2655	682	1581	1660	0			
Grp Volume(v), veh/h				911	796	842	395	298	0			
Grp Sat Flow(s),veh/h/ln				1397	1375	1390	1581	1660	0			
Q Serve(g_s), s				82.6	73.5	77.8	32.2	22.6	0.0			
Cycle Q Clear(g_c), s				82.6	73.5	77.8	32.2	22.6	0.0			
Prop In Lane				0.59		0.49	1.00		0.00			
Lane Grp Cap(c), veh/h				932	874	884	486	452	0			
V/C Ratio(X)				0.98	0.91	0.95	0.81	0.66	0.00			
Avail Cap(c_a), veh/h				932	874	884	530	498	0			
HCM Platoon Ratio				0.33	0.33	0.33	0.33	0.33	1.00			
Upstream Filter(I)				0.09	0.09	0.09	0.70	0.70	0.00			
Uniform Delay (d), s/veh				52.4	47.8	49.5	57.7	53.3	0.0			
Incr Delay (d2), s/veh				5.0	1.8	3.2	6.0	1.7	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln				34.1	28.5	30.8	14.9	10.6	0.0			
LnGrp Delay(d),s/veh				57.4	49.6	52.7	63.7	55.1	0.0			
LnGrp LOS				E	D	D	E	E				
Approach Vol, veh/h					2549			693				
Approach Delay, s/veh					53.4			60.0				
Approach LOS					D			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		88.6		41.4				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		79.0		39.0				
Max Q Clear Time (g_c+I1), s		84.6		34.2				
Green Ext Time (p_c), s		0.0		1.2				

Intersection Summary	
HCM 2010 Ctrl Delay	54.8
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	787	1106	312	42	331	1208
Future Volume (vph)	787	1106	312	42	331	1208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.90	0.85
Flt Protected	0.95	0.99	1.00		0.98	1.00
Satd. Flow (prot)	1449	3031	3129		2886	1297
Flt Permitted	0.95	0.99	1.00		0.98	1.00
Satd. Flow (perm)	1449	3031	3129		2886	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	828	1164	328	44	348	1272
RTOR Reduction (vph)	188	61	8	0	0	0
Lane Group Flow (vph)	458	1285	364	0	984	636
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	45.5	45.5	11.8		52.0	52.0
Effective Green, g (s)	45.5	45.5	11.8		52.0	52.0
Actuated g/C Ratio	0.35	0.35	0.09		0.40	0.40
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	507	1060	284		1154	518
v/s Ratio Prot			c0.12		0.34	
v/s Ratio Perm	0.32	0.42				c0.49
v/c Ratio	0.90	1.21	1.28		1.12dr	1.23
Uniform Delay, d1	40.2	42.2	59.1		35.5	39.0
Progression Factor	1.17	1.10	1.00		1.00	1.00
Incremental Delay, d2	11.1	99.4	150.7		6.3	118.7
Delay (s)	58.0	146.0	209.8		41.8	157.7
Level of Service	E	F	F		D	F
Approach Delay (s)		117.4	209.8		87.3	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	113.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	123.3%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

HCS 2045 Build B-4

Southbound analysis results match No Build

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3675	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	967	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1954	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1954	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	2	
Density, D	33.9	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5641	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1484	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1999	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1999	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	57.1	mi/h
Number of lanes, N	3	
Density, D	35.0+	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5345	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1407	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1894	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1894	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	58.4	mi/h
Number of lanes, N	3	
Density, D	32.4	pc/mi/ln
Level of service, LOS	D	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	AM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	5761	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1516	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	2042	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	2042	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes, N	3	
Density, D	36.2	pc/mi/ln
Level of service, LOS	E	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	South of SW 25th Rd Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2070	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	545	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1100	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	2	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1100	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	2	
Density, D	18.3	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	25th St Ent/8th St Exit
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3257	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	857	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1154	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1154	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	19.2	pc/mi/ln
Level of service, LOS	C	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	Exit to 8th/Entry from 8th
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	2922	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	769	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1036	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1036	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	17.3	pc/mi/ln
Level of service, LOS	B	

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency or Company:	RS&H
Date Performed:	9/27/2018
Analysis Time Period:	PM Peak
Freeway/Direction:	I-95 NB
From/To:	NW 2nd St Exit/S Miami Ave Ent
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 at SW 8th and SW 7th Street PD&E Study

Flow Inputs and Adjustments

Volume, V	3901	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1027	v
Trucks and buses	2	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	-	%
Segment length	-	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.990	
Driver population factor, fp	1.00	
Flow rate, vp	1382	pc/h/ln

Speed Inputs and Adjustments

Lane width	-	ft
Right-side lateral clearance	-	ft
Total ramp density, TRD	-	ramps/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	60.0	mi/h
Lane width adjustment, fLW	-	mi/h
Lateral clearance adjustment, fLC	-	mi/h
TRD adjustment	-	mi/h
Free-flow speed, FFS	60.0	mi/h

LOS and Performance Measures

Flow rate, vp	1382	pc/h/ln
Free-flow speed, FFS	60.0	mi/h
Average passenger-car speed, S	60.0	mi/h
Number of lanes, N	3	
Density, D	23.0	pc/mi/ln
Level of service, LOS	C	

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1966	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		1966		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		517		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	2090	pcph

Estimation of V12 Diverge Areas

L_{EQ} = 11297.85 Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 3699$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5641	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	296	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1147	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	5641		296		1147		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	1484		78		302		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5997	315	1219	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.596 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD}$ = 3699 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	5997	6900	No
$v_{FO} = v - v_R$	5682	6900	No
v_R	315	2100	No
v_3 or v_{av34}	2298 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	No	

If yes, v_{12A} = 3699 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3699	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 36.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 60.8 mph

Space mean speed for all vehicles, S = 56.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	1147	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	296	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	1147	296	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	302	78	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	1219	315	pcph

Estimation of V12 Merge Areas

L_{EQ} = 843.43 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 3354 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6902	6900	Yes
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, v_{12A} = 3354 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4573	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 37.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.672	
Space mean speed in ramp influence area,	S_R = 47.9	mph
Space mean speed in outer lanes,	S_0 = 53.3	mph
Space mean speed for all vehicles,	S = 49.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	5345	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	1147	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	903	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	5345	1147	903	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	1407	302	238	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	5683	1219	960	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 3354$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	6902	6900	Yes
v_3 or v_{av34}	2329 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} / 12	Yes	

If yes, $v_{12A} = 3354$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4573	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 37.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.672	
Space mean speed in ramp influence area,	S_R = 47.9	mph
Space mean speed in outer lanes,	S_0 = 53.3	mph
Space mean speed for all vehicles,	S = 49.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1187	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	3200	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		1187		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		312		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	3463		356		1262		pcph

Estimation of V12 Diverge Areas

L_{EQ} = 10210.93 Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

		Actual	Maximum	LOS F?
v_{Fi}	$= v_F$	3463	6900	No
v_{FO}	$= v - v_R$	3107	6900	No
v_R		356	2100	No
v_3	or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3	or v_{av34}	> 2700 pc/h?	No	
Is v_3	or v_{av34}	> 1.5 v_{12} /2	No	

If yes, $v_{12A} = 2397$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_0 = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Exit to SW 8th Street
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	3257	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	0	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1130	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3257		335		1130		vph
Peak-hour factor, PHF	0.95		0.95		0.95		
Peak 15-min volume, v15	857		88		297		v
Trucks and buses	2		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.990		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	3463		356		1201		pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.657 Using Equation 9

$v_{12} = v_R + (v - v_F) P_{FD} = 2397$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3463	6900	No
$v_{FO} = v - v_R$	3107	6900	No
v_R	356	2100	No
v_3 or v_{av34}	1066 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2397 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2397	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.330

Space mean speed in ramp influence area, S_R = 54.1 mph

Space mean speed in outer lanes, S_O = 65.6 mph

Space mean speed for all vehicles, S = 57.1 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	1130	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	950	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	1130	335	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	297	88	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	1201	356	pcph

Estimation of V12 Merge Areas

L_{EQ} = 288.31 (Equation 13-6 or 13-7)

P_{FM} = 0.590 Using Equation 3

$v_{12} = v_F (P_{FM})$ = 1833 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4308	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{av34} /2	Yes	

If yes, v_{12A} = 1833 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3034	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.375	
Space mean speed in ramp influence area,	S_R = 53.2	mph
Space mean speed in outer lanes,	S_0 = 57.2	mph
Space mean speed for all vehicles,	S = 54.4	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.90

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date performed:	9/27/2018
Analysis time period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Junction:	Ent from SW 8th St
Jurisdiction:	Miami-Dade
Analysis Year:	2045 Build
Description:	I-95 at SR 90 SW 7th & SW 8th Street PD&E Study

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	60.0	mph
Volume on freeway	2922	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	30.0	mph
Volume on ramp	1130	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	574	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2922	1130	574	vph
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, v15	769	297	151	v
Trucks and buses	2	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3107	1201	610	pcph

Estimation of V12 Merge Areas

$L_{EQ} =$ (Equation 13-6 or 13-7)

$P_{FM} = 0.590$ Using Equation 3

$v_{12} = v_F (P_{FM}) = 1833$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4308	6900	No
v_3 or v_{av34}	1274 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	Yes	

If yes, $v_{12A} = 1833$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3034	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 25.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.375$

Space mean speed in ramp influence area, $S_R = 53.2$ mph

Space mean speed in outer lanes, $S_O = 57.2$ mph

Space mean speed for all vehicles, $S = 54.4$ mph

Capacity Check for Major Merge:

I-95 Northbound Entrance from SW 25th Road

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3675	60	2	2.0%	0.95	1.5	0.985	1.00	3928	4600	No	0.85
Merging[2]	1966	45	2	2.0%	0.95	1.5	0.985	1.00	2101	4200	No	0.50
Downstream[1]	5641	60	3	2.0%	0.95	1.5	0.985	1.00	6029	6900	No	0.87

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	2070	60	2	2.0%	0.95	1.5	0.985	1.00	2213	4600	No	0.48
Merging[2]	1187	45	2	2.0%	0.95	1.5	0.985	1.00	1269	4200	No	0.30
Downstream[1]	3257	60	3	2.0%	0.95	1.5	0.985	1.00	3481	6900	No	0.50

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

Capacity Check for Major Merge:

I-95 Northbound Entrance from S Miami Ave

Assumed Major Diverge Capacity per Freeway Segment (based on HCM 2010 Exhibit 13-8):

Freeway Segment Free-Flow Speed (mph)	Capacity (pc/h)				
	2-Lanes	3-Lanes	4-Lanes	5-Lanes	6-Lanes
≥ 70	4800	7200	9600	12000	14400
65	4700	7050	9400	11750	14100
60	4600	6900	9200	11500	13800
55	4500	6750	9000	11250	13500

Assumed Major Diverge Capacity per Ramp Segment (based on HCM 2010 Exhibit 13-10):

Ramp Free-Flow Speed (mph)	Capacity of Ramp Roadway	
	Single Lane Ramp	Two-Lane Ramp
>50	2200	4400
>40-50	2100	4200
>30-40	2000	4000
≥ 20-30	1900	3800
<20	1800	3600

Build 2045 AM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	5761	60	3	2.0%	0.95	1.5	0.985	1.00	6157	6900	No	0.89
Merging[2]	488	45	2	2.0%	0.95	1.5	0.985	1.00	522	4200	No	0.12
Downstream[1]	6249	60	5	2.0%	0.95	1.5	0.985	1.00	6679	11500	No	0.58

Build 2045 PM

Location	Volume (veh/h)	FFS (mph)	# of Lanes	% Trucks	PHF	ET	fHV	fP	Flow Rate (pc/h)	Capacity (pc/h)*	Over Capacity?	v/c
Upstream[1]	3901	60	3	2.0%	0.95	1.5	0.985	1.00	4169	6900	No	0.60
Merging[2]	2904	45	2	2.0%	0.95	1.5	0.985	1.00	3104	4200	No	0.74
Downstream[1]	6805	60	5	2.0%	0.95	1.5	0.985	1.00	7273	11500	No	0.63

[1]Capacity based on Exhibit 13-8 (HCM 2010)

[2]Capacity based on Exhibit 13-10 (HCM 2010)

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5564	854	928	49	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1464	225	244	13	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	5915	908	987	52	pc/h

Volume ratio, VR 0.007

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W

Average weaving speed, SW mi/h
Average non-weaving speed, SNW mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.001	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	7778	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5789	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1964	c
		Maximum	Analyzed	
v/c ratio		1.00	1.001	d

Notes:
a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	AM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5868	870	624	33	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1544	229	164	9	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	6239	925	663	35	pc/h

Volume ratio, VR 0.004

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	105	lc/h
Weaving lane changes, LCW	540	lc/h
Non-weaving vehicle index, INW	1378	
Non-weaving lane change, LCNW	2201	lc/h
Total lane changes, LCALL	2741	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.269	
Average weaving speed, SW	50.5	mi/h
Average non-weaving speed, SNW	49.8	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	49.8	mi/h
Weaving segment density, D	39.5	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.970	
Weaving segment flow rate, v	7785	veh/h
Weaving segment capacity, cW	8028	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5769	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2027	c
		Maximum	Analyzed	
v/c ratio		1.00	0.970	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/US-1 Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1400	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3828	562	224	12	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	1007	148	59	3	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4070	597	238	13	pc/h

Volume ratio, VR 0.003

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	39	lc/h
Weaving lane changes, LCW	370	lc/h
Non-weaving vehicle index, INW	549	
Non-weaving lane change, LCNW	999	lc/h
Total lane changes, LCALL	1369	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.222	
Average weaving speed, SW	51.8	mi/h
Average non-weaving speed, SNW	53.8	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.8	mi/h
Weaving segment density, D	22.8	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.625	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	7790	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5752	1400	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	1967	c
		Maximum	Analyzed	
v/c ratio		1.00	0.625	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

HCS 2010: Freeway Weaving Release 6.90

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	RS&H
Agency/Co.:	RS&H
Date Performed:	10/1/2018
Analysis Time Period:	PM Peak
Freeway/Dir of Travel:	I-95 NB
Weaving Location:	8th St Ent/2nd St Exit
Analysis Year:	2045 Build
Description:	SR 90 SW 7th & 8th Street PD&E Study

Inputs

Segment Type	Freeway	
Weaving configuration	Two-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	2200	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	3587	550	465	24	veh/h
Peak hour factor, PHF	0.95	0.95	0.95	0.95	
Peak 15-min volume, v15	944	145	122	6	
Trucks and buses	2	2	2	2	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.990	0.990	0.990	0.990	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3814	585	494	26	pc/h

Volume ratio, VR 0.005

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.8	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR	3	lc/pc
Minimum weaving lane changes, LCMIN	78	lc/h
Weaving lane changes, LCW	513	lc/h
Non-weaving vehicle index, INW	861	
Non-weaving lane change, LCNW	1430	lc/h
Total lane changes, LCALL	1943	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.205	
Average weaving speed, SW	52.3	mi/h
Average non-weaving speed, SNW	53.5	mi/h

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.5	mi/h
Weaving segment density, D	23.0	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.607	
Weaving segment flow rate, v	4870	veh/h
Weaving segment capacity, cW	8024	veh/h

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5777	2200	a,b
		Maximum	Analyzed	
Density-based capacty, cIWL (pc/h/ln)		2300	2026	c
		Maximum	Analyzed	
v/c ratio		1.00	0.607	d

Notes:

a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
d. Volumes exceed the weaving segment capacity. The level of service is F.

Synchro 2045 Build B-4

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1386	623	0
Future Volume (veh/h)	0	2279	46	0	0	0	0	0	0	1386	623	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	2399	48							1459	656	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2653	53							2169	740	0
Arrive On Green	0.00	0.15	0.15							0.15	0.15	0.00
Sat Flow, veh/h	0	6099	117							4503	1676	0
Grp Volume(v), veh/h	0	1769	678							1459	656	0
Grp Sat Flow(s),veh/h/ln	0	1442	1656							1501	1676	0
Q Serve(g_s), s	0.0	48.3	48.3							37.2	46.1	0.0
Cycle Q Clear(g_c), s	0.0	48.3	48.3							37.2	46.1	0.0
Prop In Lane	0.00		0.07							1.00		0.00
Lane Grp Cap(c), veh/h	0	1957	749							2169	740	0
V/C Ratio(X)	0.00	0.90	0.90							0.67	0.89	0.00
Avail Cap(c_a), veh/h	0	1957	749							2169	740	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.24	0.24							0.20	0.20	0.00
Uniform Delay (d), s/veh	0.0	48.5	48.5							44.5	48.3	0.0
Incr Delay (d2), s/veh	0.0	2.0	4.9							0.3	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	19.6	23.2							15.6	22.1	0.0
LnGrp Delay(d),s/veh	0.0	50.4	53.4							44.8	51.8	0.0
LnGrp LOS		D	D							D	D	
Approach Vol, veh/h		2447									2115	
Approach Delay, s/veh		51.3									47.0	
Approach LOS		D									D	

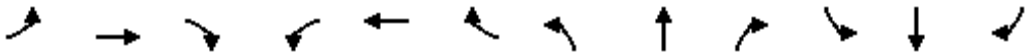
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		61.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		53.0				
Max Q Clear Time (g_c+I1), s		50.3		48.1				
Green Ext Time (p_c), s		3.4		3.5				

Intersection Summary	
HCM 2010 Ctrl Delay	49.3
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018



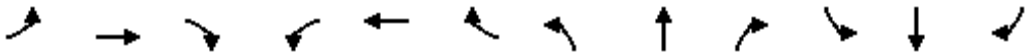
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2557	205	0	0	0	0	0	694	10	942	0
Future Volume (vph)	0	2557	205	0	0	0	0	0	694	10	942	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0							6.0	6.0	6.0	
Lane Util. Factor		0.91							0.88	1.00	0.95	
Frt		0.99							0.85	1.00	1.00	
Flt Protected		1.00							1.00	0.95	1.00	
Satd. Flow (prot)		4526							2508	1593	3185	
Flt Permitted		1.00							1.00	0.95	1.00	
Satd. Flow (perm)		4526							2508	1593	3185	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	2692	216	0	0	0	0	0	731	11	992	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	19	8	0	0
Lane Group Flow (vph)	0	2903	0	0	0	0	0	0	712	3	992	0
Turn Type		NA							Perm	Perm	NA	
Protected Phases		6									8	
Permitted Phases									4	8		
Actuated Green, G (s)		71.0							37.0	37.0	37.0	
Effective Green, g (s)		71.0							37.0	37.0	37.0	
Actuated g/C Ratio		0.59							0.31	0.31	0.31	
Clearance Time (s)		6.0							6.0	6.0	6.0	
Vehicle Extension (s)		2.5							2.5	2.5	2.5	
Lane Grp Cap (vph)		2677							773	491	982	
v/s Ratio Prot		c0.64									c0.31	
v/s Ratio Perm									0.28	0.00		
v/c Ratio		1.08							0.92	0.01	1.01	
Uniform Delay, d1		24.5							40.1	28.8	41.5	
Progression Factor		0.88							1.00	0.34	0.71	
Incremental Delay, d2		41.5							18.1	0.0	11.2	
Delay (s)		63.0							58.2	9.8	40.9	
Level of Service		E							E	A	D	
Approach Delay (s)		63.0			0.0			58.2			40.6	
Approach LOS		E			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	130.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	840	2105	316	0	0	0	0	1155	105	303	508	0
Future Volume (vph)	840	2105	316	0	0	0	0	1155	105	303	508	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.99						0.99			1.00	
Flt Protected		0.99						1.00			0.98	
Satd. Flow (prot)		4263						4475			3097	
Flt Permitted		0.99						1.00			0.58	
Satd. Flow (perm)		4263						4475			1832	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	884	2216	333	0	0	0	0	1216	111	319	535	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	3422	0	0	0	0	0	1318	0	0	854	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		63.7						28.7			43.7	
Effective Green, g (s)		63.7						28.7			43.7	
Actuated g/C Ratio		0.53						0.24			0.36	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2262						1070			783	
v/s Ratio Prot								c0.29			c0.10	
v/s Ratio Perm		0.80									0.30	
v/c Ratio		1.51						1.23			1.84dl	
Uniform Delay, d1		28.1						45.6			38.1	
Progression Factor		0.60						1.00			0.57	
Incremental Delay, d2		231.0						112.5			43.2	
Delay (s)		248.0						158.2			64.8	
Level of Service		F						F			E	
Approach Delay (s)		248.0			0.0			158.2			64.8	
Approach LOS		F			A			F			E	

Intersection Summary			
HCM 2000 Control Delay	198.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	140.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	76	1001	243	679	1316	0	0	735	207
Future Volume (veh/h)	0	0	0	76	1001	243	679	1316	0	0	735	207
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				80	1054	256	715	1385	0	0	774	218
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				208	2904	733	574	2024	0	0	648	183
Arrive On Green				0.27	0.27	0.27	0.65	1.00	0.00	0.00	0.27	0.27
Sat Flow, veh/h				253	3521	888	1581	3237	0	0	2515	685
Grp Volume(v), veh/h				522	435	433	715	1385	0	0	502	490
Grp Sat Flow(s),veh/h/ln				1648	1511	1503	1581	1577	0	0	1577	1539
Q Serve(g_s), s				30.9	27.8	27.8	39.0	0.0	0.0	0.0	32.0	32.0
Cycle Q Clear(g_c), s				30.9	27.8	27.8	39.0	0.0	0.0	0.0	32.0	32.0
Prop In Lane				0.15		0.59	1.00		0.00	0.00		0.44
Lane Grp Cap(c), veh/h				1359	1246	1240	574	2024	0	0	421	410
V/C Ratio(X)				0.38	0.35	0.35	1.25	0.68	0.00	0.00	1.19	1.19
Avail Cap(c_a), veh/h				1359	1246	1240	574	2024	0	0	421	410
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				18.9	17.8	17.8	19.0	0.0	0.0	0.0	44.0	44.0
Incr Delay (d2), s/veh				0.6	0.6	0.6	112.1	0.2	0.0	0.0	108.3	108.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				14.3	11.8	11.8	36.0	0.0	0.0	0.0	26.6	26.0
LnGrp Delay(d),s/veh				19.5	18.3	18.3	131.0	0.2	0.0	0.0	152.3	152.8
LnGrp LOS				B	B	B	F	A			F	F
Approach Vol, veh/h					1390			2100			992	
Approach Delay, s/veh					18.8			44.7			152.6	
Approach LOS					B			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		107.0		83.0			45.0	38.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		33.0		75.0			39.0	* 32
Max Q Clear Time (g_c+I1), s		32.9		2.0			41.0	34.0
Green Ext Time (p_c), s		0.1		4.9			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.5
HCM 2010 LOS	E

Notes

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	179	542	285	15	1545	544
Future Volume (vph)	179	542	285	15	1545	544
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1449	3046	3161		3087	1297
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1449	3046	3161		3087	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	188	571	300	16	1626	573
RTOR Reduction (vph)	84	84	4	0	0	0
Lane Group Flow (vph)	85	506	312	0	1683	516
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	21.5	21.5	11.8		66.0	66.0
Effective Green, g (s)	21.5	21.5	11.8		66.0	66.0
Actuated g/C Ratio	0.18	0.18	0.10		0.55	0.55
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	259	545	310		1697	713
v/s Ratio Prot			c0.10		c0.55	
v/s Ratio Perm	0.06	0.17				0.40
v/c Ratio	0.33	0.93	1.01		0.99	0.72
Uniform Delay, d1	43.0	48.5	54.1		26.7	20.2
Progression Factor	1.43	1.19	1.00		1.00	1.00
Incremental Delay, d2	0.3	3.5	53.1		19.8	3.6
Delay (s)	61.9	61.1	107.2		46.5	23.8
Level of Service	E	E	F		D	C
Approach Delay (s)		61.3	107.2		41.2	
Approach LOS		E	F		D	

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
912: SW 4th Ave & SW 8 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1017	654	0
Future Volume (veh/h)	0	1609	77	0	0	0	0	0	0	1017	654	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710							1676	1676	0
Adj Flow Rate, veh/h	0	1694	81							1071	688	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.95	0.95	0.95							0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2111	101							2556	890	0
Arrive On Green	0.00	0.12	0.12							0.18	0.18	0.00
Sat Flow, veh/h	0	5917	272							4503	1676	0
Grp Volume(v), veh/h	0	1289	486							1071	688	0
Grp Sat Flow(s),veh/h/ln	0	1442	1629							1501	1676	0
Q Serve(g_s), s	0.0	37.7	37.7							27.7	50.9	0.0
Cycle Q Clear(g_c), s	0.0	37.7	37.7							27.7	50.9	0.0
Prop In Lane	0.00		0.17							1.00		0.00
Lane Grp Cap(c), veh/h	0	1607	605							2556	890	0
V/C Ratio(X)	0.00	0.80	0.80							0.42	0.77	0.00
Avail Cap(c_a), veh/h	0	1607	605							2556	890	0
HCM Platoon Ratio	1.00	0.33	0.33							0.33	0.33	1.00
Upstream Filter(I)	0.00	0.52	0.52							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	52.4	52.4							36.6	46.1	0.0
Incr Delay (d2), s/veh	0.0	2.3	5.9							0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.4	18.0							11.5	23.8	0.0
LnGrp Delay(d),s/veh	0.0	54.7	58.3							36.6	46.8	0.0
LnGrp LOS		D	E							D	D	
Approach Vol, veh/h		1775									1759	
Approach Delay, s/veh		55.7									40.6	
Approach LOS		E									D	

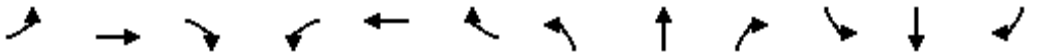
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		55.0		75.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 48		69.0				
Max Q Clear Time (g_c+I1), s		39.7		52.9				
Green Ext Time (p_c), s		5.4		6.9				

Intersection Summary	
HCM 2010 Ctrl Delay	48.2
HCM 2010 LOS	D

Notes

HCM Signalized Intersection Capacity Analysis
913: SW 3rd Ave & SW 8 St

12/12/2018



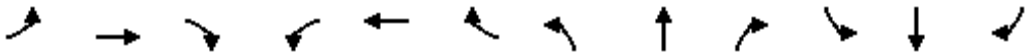
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1962	90	0	0	0	0	0	945	27	1040	0
Future Volume (vph)	0	1962	90	0	0	0	0	0	945	27	1040	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0							6.0	6.0	6.0	
Lane Util. Factor		0.91							0.88	1.00	0.95	
Frt		0.99							0.85	1.00	1.00	
Flt Protected		1.00							1.00	0.95	1.00	
Satd. Flow (prot)		4547							2508	1593	3185	
Flt Permitted		1.00							1.00	0.95	1.00	
Satd. Flow (perm)		4547							2508	1593	3185	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	2065	95	0	0	0	0	0	995	28	1095	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	14	14	0	0
Lane Group Flow (vph)	0	2156	0	0	0	0	0	0	981	14	1095	0
Turn Type		NA							Perm	Perm	NA	
Protected Phases		6									8	
Permitted Phases									4	8		
Actuated Green, G (s)		63.0							55.0	55.0	55.0	
Effective Green, g (s)		63.0							55.0	55.0	55.0	
Actuated g/C Ratio		0.48							0.42	0.42	0.42	
Clearance Time (s)		6.0							6.0	6.0	6.0	
Vehicle Extension (s)		2.5							2.5	2.5	2.5	
Lane Grp Cap (vph)		2203							1061	673	1347	
v/s Ratio Prot		c0.47									0.34	
v/s Ratio Perm									c0.39	0.01		
v/c Ratio		0.98							0.92	0.02	0.81	
Uniform Delay, d1		32.8							35.5	21.8	33.0	
Progression Factor		0.58							1.00	0.43	0.60	
Incremental Delay, d2		11.9							14.5	0.0	0.4	
Delay (s)		31.1							50.0	9.3	20.2	
Level of Service		C							D	A	C	
Approach Delay (s)		31.1			0.0			50.0			19.9	
Approach LOS		C			A			D			B	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	151.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
914: SW 2nd Ave & SW 8 St

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1053	1412	469	0	0	0	0	1120	106	200	482	0
Future Volume (vph)	1053	1412	469	0	0	0	0	1120	106	200	482	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3						6.3			6.3	
Lane Util. Factor		0.91						0.91			0.95	
Frt		0.98						0.99			1.00	
Flt Protected		0.98						1.00			0.99	
Satd. Flow (prot)		4201						4473			3109	
Flt Permitted		0.98						1.00			0.55	
Satd. Flow (perm)		4201						4473			1744	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1108	1486	494	0	0	0	0	1179	112	211	507	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	3067	0	0	0	0	0	1283	0	0	718	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Parking (#/hr)		0										
Turn Type	Perm	NA						NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4									6		
Actuated Green, G (s)		70.7						31.7			46.7	
Effective Green, g (s)		70.7						31.7			46.7	
Actuated g/C Ratio		0.54						0.24			0.36	
Clearance Time (s)		6.3						6.3			6.3	
Vehicle Extension (s)		1.0						1.0			1.0	
Lane Grp Cap (vph)		2284						1090			741	
v/s Ratio Prot								c0.29			c0.08	
v/s Ratio Perm		0.73									0.27	
v/c Ratio		1.40dl						1.18			1.33dl	
Uniform Delay, d1		29.6						49.1			40.9	
Progression Factor		0.92						1.00			0.47	
Incremental Delay, d2		155.2						89.3			5.0	
Delay (s)		182.4						138.5			24.3	
Level of Service		F						F			C	
Approach Delay (s)		182.4			0.0			138.5			24.3	
Approach LOS		F			A			F			C	

Intersection Summary			
HCM 2000 Control Delay	149.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	129.4%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
922: SW 2nd Ave & SW 7 St

12/12/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	100	1568	278	1083	1090	0	0	582	428
Future Volume (veh/h)	0	0	0	100	1568	278	1083	1090	0	0	582	428
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1660	1710	1660	1660	0	0	1660	1710
Adj Flow Rate, veh/h				105	1651	293	1140	1147	0	0	613	451
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %				0	3	0	3	3	0	0	3	3
Cap, veh/h				187	3112	568	591	1917	0	0	387	285
Arrive On Green				0.27	0.27	0.27	0.68	1.00	0.00	0.00	0.22	0.22
Sat Flow, veh/h				227	3781	690	1581	3237	0	0	1819	1276
Grp Volume(v), veh/h				761	634	654	1140	1147	0	0	557	507
Grp Sat Flow(s),veh/h/ln				1649	1511	1538	1581	1577	0	0	1577	1435
Q Serve(g_s), s				51.6	46.1	46.8	44.0	0.0	0.0	0.0	29.0	29.0
Cycle Q Clear(g_c), s				51.6	46.1	46.8	44.0	0.0	0.0	0.0	29.0	29.0
Prop In Lane				0.14		0.45	1.00		0.00	0.00		0.89
Lane Grp Cap(c), veh/h				1357	1243	1266	591	1917	0	0	352	320
V/C Ratio(X)				0.56	0.51	0.52	1.93	0.60	0.00	0.00	1.58	1.58
Avail Cap(c_a), veh/h				1357	1243	1266	591	1917	0	0	352	320
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.49	0.49	0.49	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.2	25.2	25.4	18.9	0.0	0.0	0.0	50.5	50.5
Incr Delay (d2), s/veh				0.8	0.7	0.7	419.3	0.1	0.0	0.0	275.4	277.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				23.9	19.5	20.2	89.1	0.0	0.0	0.0	39.5	36.1
LnGrp Delay(d),s/veh				28.0	25.9	26.1	438.2	0.1	0.0	0.0	325.9	327.9
LnGrp LOS				C	C	C	F	A			F	F
Approach Vol, veh/h					2049			2287			1064	
Approach Delay, s/veh					26.8			218.5			326.9	
Approach LOS					C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		115.0		85.0			50.0	35.0
Change Period (Y+Rc), s		6.0		6.0			6.0	* 6
Max Green Setting (Gmax), s		41.0		77.0			44.0	* 29
Max Q Clear Time (g_c+I1), s		53.6		2.0			46.0	31.0
Green Ext Time (p_c), s		0.0		3.7			0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	167.1
HCM 2010 LOS	F

Notes

HCM Signalized Intersection Capacity Analysis
924: SW 7 St & SW 4th Ave & SB I95 Off Ramp

12/12/2018

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	231	1106	312	42	1128	1208
Future Volume (vph)	231	1106	312	42	1128	1208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.98		0.96	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	1449	3048	3129		3003	1297
Flt Permitted	0.95	1.00	1.00		0.97	1.00
Satd. Flow (perm)	1449	3048	3129		3003	1297
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	243	1164	328	44	1187	1272
RTOR Reduction (vph)	66	66	8	0	0	0
Lane Group Flow (vph)	153	1122	364	0	1683	776
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	38.5	38.5	11.8		59.0	59.0
Effective Green, g (s)	38.5	38.5	11.8		59.0	59.0
Actuated g/C Ratio	0.30	0.30	0.09		0.45	0.45
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	429	902	284		1362	588
v/s Ratio Prot			c0.12		0.56	
v/s Ratio Perm	0.11	0.37				c0.60
v/c Ratio	0.36	1.24	1.28		1.24	1.32
Uniform Delay, d1	36.0	45.8	59.1		35.5	35.5
Progression Factor	1.17	1.11	1.00		1.00	1.00
Incremental Delay, d2	0.2	110.6	150.7		112.6	155.6
Delay (s)	42.2	161.5	209.8		148.1	191.1
Level of Service	D	F	F		F	F
Approach Delay (s)		142.9	209.8		161.6	
Approach LOS		F	F		F	

Intersection Summary			
HCM 2000 Control Delay	159.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Appendix G: VISSIM Outputs (2045 No Build and Recommended Alternative)

- VISSIM Intersection Performance
- VISSIM 15-Minute Volume Flow Rates

VISSIM Intersection Performance

AM No Build: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	309	1,584	63	0	0	0	0	205	60	199	198	0
Volume	301	1,539	57					204	57	201	189	
Demand -Simulated Volume	-8	-45	-6					-1	-3	2	-9	
Percentage (%)	-3%	-3%	-10%					0%	-5%	1%	-5%	
Delay (sec/veh)	44	43	42					30	21	24	22	
Delay (sec/veh)		42.8						27.9			23.2	
Max queue (ft)	1,144	1,144	1,170					284	317	333	317	
							Intersection Delay (sec/veh)				38.3	

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	106	1,727	10	0	0	0	0	97	598	0	0	0
Volume	94	1,639	11					89	589			
Demand -Simulated Volume	-12	-88	1					-8	-9			
Percentage (%)	-11%	-5%	10%					-8%	-2%			
Delay (sec/veh)	87	108	127					60	52			
Delay (sec/veh)		107.1						53.4				
Max queue (ft)	1,506	1,506	1,495					1,152	1,179			
							Intersection Delay (sec/veh)				92.0	

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	2,279	46	0	0	0	0	0	0	1,942	623	0
Volume		2,168	41							1,260	388	
Demand -Simulated Volume		-111	-5							-682	-235	
Percentage (%)		-5%	-11%							-35%	-38%	
Delay (sec/veh)		40	40							43	37	
Delay (sec/veh)		40.3									41.3	
Max queue (ft)		561	595							400	400	
							Intersection Delay (sec/veh)				40.7	

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	43	2,514	205	0	0	0	0	305	389	10	386	0
Volume	26	1,823	194					293	364	4	247	
Demand -Simulated Volume	-17	-691	-11					-12	-25	-6	-139	
Percentage (%)	-40%	-27%	-5%					-4%	-6%	-60%	-36%	
Delay (sec/veh)	18	18	20					114	100	22	21	
Delay (sec/veh)		18.0						106.2			21.4	
Max queue (ft)	533	533	68					863	863	27	363	
							Intersection Delay (sec/veh)				38.0	

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	492	2,105	316	0	0	0	0	1,155	105	303	508	0
Volume	369	1,592	233					678	59	246	392	
Demand -Simulated Volume	-123	-513	-83					-477	-46	-57	-116	
Percentage (%)	-25%	-24%	-26%					-41%	-44%	-19%	-23%	
Delay (sec/veh)	11	8	9					314	304	105	18	
Delay (sec/veh)		8.5						313.6			51.6	
Max queue (ft)	297	297	315					2,571	2,598	381	381	
							Intersection Delay (sec/veh)				79.2	

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,908	605	0	0	0	0	0	0	291	652	0
Volume		1,439	461							264	588	
Demand -Simulated Volume		-469	-144							-27	-64	
Percentage (%)		-25%	-24%							-9%	-10%	
Delay (sec/veh)		9	14							30	26	
Delay (sec/veh)		10.2									27.2	
Max queue (ft)		295	321							341	341	
							Intersection Delay (sec/veh)				15.5	

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	271	1,928	0	0	0	0	0	770	90	0	0	0
Volume	206	1,497						678	84			
Demand -Simulated Volume	-65	-431						-92	-6			
Percentage (%)	-24%	-22%						-12%	-7%			
Delay (sec/veh)	5	6						140	61			
Delay (sec/veh)		6.1						131.3				
Max queue (ft)	193	193						1,119	1,121			
							Intersection Delay (sec/veh)				44.8	

AM No Build: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	712	80	362	679	0	0	0	0
Volume					232	34	269	602				
Demand -Simulated Volume					-480	-46	-93	-77				
Percentage (%)					-67%	-58%	-26%	-11%				
Delay (sec/veh)					1,094	993	193	16				
Delay (sec/veh)					1,080.7			70.7				
Max queue (ft)					2,535	2,552	390	390				
							Intersection Delay (sec/veh)				307.0	

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	149	925	0	0	0	0	0	794	395
Volume				60	428						793	378
Demand -Simulated Volume				-89	-497						-1	-17
Percentage (%)				-60%	-54%						0%	-4%
Delay (sec/veh)				324	337						37	110
Delay (sec/veh)				335.2						60.3		
Max queue (ft)				595	595						652	654
							Intersection Delay (sec/veh)				141.2	

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	76	1,001	243	331	1,316	0	0	735	207
Volume				46	606	148	190	859			551	151
Demand -Simulated Volume				-30	-395	-95	-141	-457			-184	-56
Percentage (%)				-39%	-39%	-39%	-43%	-35%			-25%	-27%
Delay (sec/veh)				239	288	189	15	8			339	209
Delay (sec/veh)				266.5			9.7			310.9		
Max queue (ft)				802	802	819	262	248			1,523	1,552
							Intersection Delay (sec/veh)				173.1	

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	396	1,054	89	223	125	0	0	0	0
Volume				251	652	55	217	105				
Demand -Simulated Volume				-145	-402	-34	-6	-20				
Percentage (%)				-37%	-38%	-38%	-3%	-16%				
Delay (sec/veh)				49	124	63	37	23				
Delay (sec/veh)				101.0			32.3					
Max queue (ft)				589	589	617	348	213				
							Intersection Delay (sec/veh)				83.7	

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	735	542	0	0	0	0	0	285	15	1545	0	544
Volume				515	353						239	14	878		307
Demand -Simulated Volume				-220	-189						-46	-1	-667		-237
Percentage (%)				-30%	-35%						-16%	-7%	-43%		-44%
Delay (sec/veh)				136	63						733	444	736		717
Delay (sec/veh)				106.6						717.1			731.3		
Max queue (ft)				567	567						1,445	1,445	9,272		9,272
										Intersection Delay (sec/veh)			494.6		

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	63	960	67	88	426	0	0	334	129
Volume				43	677	45	82	424			347	126
Demand -Simulated Volume				-20	-283	-22	-6	-2			13	-3
Percentage (%)				-32%	-29%	-33%	-7%	0%			4%	-2%
Delay (sec/veh)				28	27	24	16	15			14	12
Delay (sec/veh)				27.0			15.6			13.3		
Max queue (ft)				261	261	283	375	375			395	411
							Intersection Delay (sec/veh)				20.0	

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	818	283	152	51	0	0	0	120
Volume					506	173	134	50				122
Demand -Simulated Volume					-312	-110	-18	-1				2
Percentage (%)					-38%	-39%	-12%	-2%				2%
Delay (sec/veh)					0	0	7	15				10
Delay (sec/veh)				0.3			9.1			9.7		
Max queue (ft)					0	0	95	81				112
							Intersection Delay (sec/veh)				3.1	

PM No Build: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	233	1,406	31	0	0	0	0	154	44	157	190	0
Volume	228	1,402	29					158	36	150	184	
Demand -Simulated Volume	-5	-4	-2					4	-8	-7	-6	
Percentage (%)	-2%	0%	-6%					3%	-18%	-4%	-3%	
Delay (sec/veh)	29	25	24					30	20	6	14	
Delay (sec/veh)		25.9						28.5			10.3	
Max queue (ft)	515	515	541					228	260	226	211	
							Intersection Delay (sec/veh)				23.8	

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	243	1,316	48	0	0	0	0	183	370	0	0	0
Volume	229	1,340	52					171	371			
Demand -Simulated Volume	-14	24	4					-12	1			
Percentage (%)	-6%	2%	8%					-7%	0%			
Delay (sec/veh)	35	33	32					29	24			
Delay (sec/veh)		33.6						25.7				
Max queue (ft)	622	622	610					574	602			
							Intersection Delay (sec/veh)				31.6	

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,609	77	0	0	0	0	0	0	1,573	654	0
Volume		1,630	77							1,211	412	
Demand -Simulated Volume		21	0							-362	-242	
Percentage (%)		1%	0%							-23%	-37%	
Delay (sec/veh)		22	15							36	22	
Delay (sec/veh)		21.8									32.4	
Max queue (ft)		412	446							384	384	
							Intersection Delay (sec/veh)				27.0	

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	105	1,857	90	0	0	0	0	553	392	27	484	0
Volume	92	1,614	88					414	328	12	244	
Demand -Simulated Volume	-13	-243	-2					-139	-64	-15	-240	
Percentage (%)	-12%	-13%	-2%					-25%	-16%	-56%	-50%	
Delay (sec/veh)	34	31	40					401	283	32	24	
Delay (sec/veh)		31.5						348.6			24.0	
Max queue (ft)	563	563	13					3,596	3,596	43	365	
							Intersection Delay (sec/veh)				115.1	

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	395	1,412	469	0	0	0	0	1,120	106	200	482	0
Volume	335	1,203	404					753	67	160	370	
Demand -Simulated Volume	-60	-209	-65					-367	-39	-40	-112	
Percentage (%)	-15%	-15%	-14%					-33%	-37%	-20%	-23%	
Delay (sec/veh)	18	21	31					261	232	84	24	
Delay (sec/veh)		22.5						258.5			42.2	
Max queue (ft)	542	542	560					2,562	2,589	368	368	
							Intersection Delay (sec/veh)				84.5	

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,296	422	0	0	0	0	0	0	180	932	0
Volume		1,079	354							113	646	
Demand -Simulated Volume		-217	-68							-67	-286	
Percentage (%)		-17%	-16%							-37%	-31%	
Delay (sec/veh)		7	9							9	14	
Delay (sec/veh)		7.6									13.1	
Max queue (ft)		233	259							182	182	
							Intersection Delay (sec/veh)				9.5	

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	342	1,134	0	0	0	0	0	884	66	0	0	0
Volume	286	917						869	66			
Demand -Simulated Volume	-56	-217						-15	0			
Percentage (%)	-16%	-19%						-2%	0%			
Delay (sec/veh)	53	29						77	33			
Delay (sec/veh)		34.5						74.0				
Max queue (ft)	467	467						694	696			
							Intersection Delay (sec/veh)				51.8	

PM No Build: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,290	145	556	670	0	0	0	0
Volume					324	38	516	615				
Demand -Simulated Volume					-966	-107	-40	-55				
Percentage (%)					-75%	-74%	-7%	-8%				
Delay (sec/veh)					1,299	1,263	77	23				
Delay (sec/veh)				1,295.0			47.5					
Max queue (ft)					2,550	2,567	362	362				
							Intersection Delay (sec/veh)			350.0		

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	272	1,574	0	0	0	0	0	840	372
Volume				124	698						560	193
Demand -Simulated Volume				-148	-876						-280	-179
Percentage (%)				-54%	-56%						-33%	-48%
Delay (sec/veh)				127	214						168	847
Delay (sec/veh)				200.6						341.6		
Max queue (ft)				590	590						1,522	1,525
							Intersection Delay (sec/veh)			268.0		

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	100	1,568	278	425	1,090	0	0	582	428
Volume				50	732	142	273	801			443	314
Demand -Simulated Volume				-50	-836	-136	-152	-289			-139	-114
Percentage (%)				-50%	-53%	-49%	-36%	-27%			-24%	-27%
Delay (sec/veh)				189	248	233	103	27			297	258
Delay (sec/veh)				242.2			46.8			281.0		
Max queue (ft)				823	823	840	418	406			1,523	1,552
							Intersection Delay (sec/veh)			176.7		

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	511	1,518	392	375	283	0	0	0	0
Volume				253	853	220	277	228				
Demand -Simulated Volume				-258	-665	-172	-98	-55				
Percentage (%)				-50%	-44%	-44%	-26%	-19%				
Delay (sec/veh)				61	93	62	38	25				
Delay (sec/veh)				82.1			31.9					
Max queue (ft)				570	570	599	385	365				
							Intersection Delay (sec/veh)			68.2		

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	787	1,106	0	0	0	0	0	312	42	1128	0	1208
Volume				478	653						268	35	896		902
Demand -Simulated Volume				-309	-453						-44	-7	-232		-306
Percentage (%)				-39%	-41%						-14%	-17%	-21%		-25%
Delay (sec/veh)				133	61						544	291	345		359
Delay (sec/veh)				91.1						514.5			351.9		
Max queue (ft)				562	562						1,407	1,407	9,273		9,273
										Intersection Delay (sec/veh)			275.9		

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	74	2,160	116	128	259	0	0	273	88
Volume				50	1,593	83	126	262			284	89
Demand -Simulated Volume				-24	-567	-33	-2	3			11	1
Percentage (%)				-32%	-26%	-28%	-2%	1%			4%	1%
Delay (sec/veh)				21	21	21	24	25			27	23
Delay (sec/veh)				21.1			24.6			26.2		
Max queue (ft)				437	437	458	351	351			460	475
							Intersection Delay (sec/veh)			22.4		

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,882	474	348	78	0	0	0	120
Volume					1,284	315	321	78				122
Demand -Simulated Volume					-598	-159	-27	0				2
Percentage (%)					-32%	-34%	-8%	0%				2%
Delay (sec/veh)					0	1	13	23				19
Delay (sec/veh)				0.3			15.3			18.7		
Max queue (ft)					0	0	188	121				140
							Intersection Delay (sec/veh)			4.2		

AM Build: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	309	1,584	63	0	0	0	0	205	60	199	198	0
Volume	304	1,580	62					202	59	198	204	
Demand -Simulated Volume	-5	-4	-1					-3	-1	-1	6	
Percentage (%)	-2%	0%	-2%					-1%	-2%	-1%	3%	
Delay (sec/veh)	28	24	23					30	21	21	20	
Delay (sec/veh)		24.6						27.7			20.4	
Max queue (ft)	558	558	585					284	317	340	324	
							Intersection Delay (sec/veh)				24.2	

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	106	1,727	10	0	0	0	0	97	598	0	0	0
Volume	105	1,725	9					96	590			
Demand -Simulated Volume	-1	-2	-1					-1	-8			
Percentage (%)	-1%	0%	-10%					-1%	-1%			
Delay (sec/veh)	36	35	26					33	30			
Delay (sec/veh)		34.9						30.0				
Max queue (ft)	758	758	746					744	771			
							Intersection Delay (sec/veh)				33.6	

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	2,279	46	0	0	0	0	0	0	216	623	0
Volume		2,278	43							206	624	
Demand -Simulated Volume		-1	-3							-10	1	
Percentage (%)		0%	-7%							-5%	0%	
Delay (sec/veh)		14	11							17	18	
Delay (sec/veh)		13.5									17.9	
Max queue (ft)		341	374							330	330	
							Intersection Delay (sec/veh)				14.6	

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	43	1,344	0	0	0	0	0	305	389	10	0	0
Volume	48	1,333						294	395	8		
Demand -Simulated Volume	5	-11						-11	6	-2		
Percentage (%)	12%	-1%						-4%	2%	-20%		
Delay (sec/veh)	9	14						65	37	52		
Delay (sec/veh)		14.0						49.1			51.6	
Max queue (ft)	230	289						482	500	43		
							Intersection Delay (sec/veh)				25.8	

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	492	2,105	316	0	0	0	0	1,155	105	303	508	0
Volume	501	2,043	321					643	55	246	420	
Demand -Simulated Volume	9	-62	5					-512	-50	-57	-88	
Percentage (%)	2%	-3%	2%					-44%	-48%	-19%	-17%	
Delay (sec/veh)	18	20	15					333	327	103	18	
Delay (sec/veh)		19.3						332.6			49.2	
Max queue (ft)	427	664	409					2,567	2,581	408	378	
							Intersection Delay (sec/veh)				75.7	

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,908	605	0	0	0	0	0	0	291	652	0
Volume		1,772	571							276	630	
Demand -Simulated Volume		-136	-34							-15	-22	
Percentage (%)		-7%	-6%							-5%	-3%	
Delay (sec/veh)		15	22							50	46	
Delay (sec/veh)		16.9									47.1	
Max queue (ft)		419	444							389	389	
							Intersection Delay (sec/veh)				25.3	

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	271	1,928	0	0	0	0	0	770	90	0	0	0
Volume	250	1,797						778	87			
Demand -Simulated Volume	-21	-131						8	-3			
Percentage (%)	-8%	-7%						1%	-3%			
Delay (sec/veh)	7	5						37	35			
Delay (sec/veh)		5.5						36.7				
Max queue (ft)	211	211						390	392			
							Intersection Delay (sec/veh)				14.7	

AM Build: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	712	80	362	679	0	0	0	0
Volume					717	86	354	674				
Demand -Simulated Volume					5	6	-8	-5				
Percentage (%)					1%	8%	-2%	-1%				
Delay (sec/veh)					27	24	12	15				
Delay (sec/veh)					26.8			13.8				
Max queue (ft)					276	293	241	241				
							Intersection Delay (sec/veh)				19.5	

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	149	925	0	0	0	0	0	794	395
Volume				136	935						773	392
Demand -Simulated Volume				-13	10						-21	-3
Percentage (%)				-9%	1%						-3%	-1%
Delay (sec/veh)				53	16						70	11
Delay (sec/veh)				20.4						50.3		
Max queue (ft)				303	303						736	738
							Intersection Delay (sec/veh)				36.0	

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	76	1,001	243	331	1,316	0	0	735	207
Volume				76	997	244	231	917			554	152
Demand -Simulated Volume				0	-4	1	-100	-399			-181	-55
Percentage (%)				0%	0%	0%	-30%	-30%			-25%	-27%
Delay (sec/veh)				52	41	23	20	10			335	190
Delay (sec/veh)				38.4			12.1			303.6		
Max queue (ft)				603	603	620	254	241			1,530	1,559
							Intersection Delay (sec/veh)				87.9	

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	10	498	89	223	125	0	0	0	0
Volume				8	442	83	216	124				
Demand -Simulated Volume				-2	-56	-6	-7	-1				
Percentage (%)				-20%	-11%	-7%	-3%	-1%				
Delay (sec/veh)				6	6	5	25	20				
Delay (sec/veh)				6.1			23.0					
Max queue (ft)				183	183	211	356	253				
							Intersection Delay (sec/veh)				12.7	

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	179	542	0	0	0	0	0	285	15	375	0	544
Volume				168	490						294	13	365		536
Demand -Simulated Volume				-11	-52						9	-2	-10		-8
Percentage (%)				-6%	-10%						3%	-13%	-3%		-1%
Delay (sec/veh)				23	21						53	48	60		65
Delay (sec/veh)				21.8						52.5			62.8		
Max queue (ft)				267	267						245	245	652		652
										Intersection Delay (sec/veh)			46.6		

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	63	960	67	88	426	0	0	334	129
Volume				61	915	64	87	421			340	134
Demand -Simulated Volume				-2	-45	-3	-1	-5			6	5
Percentage (%)				-3%	-5%	-4%	-1%	-1%			2%	4%
Delay (sec/veh)				30	29	27	15	16			14	12
Delay (sec/veh)				29.1			15.9			13.1		
Max queue (ft)				315	315	336	373	373			388	404
							Intersection Delay (sec/veh)				22.1	

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	818	283	152	51	0	0	0	120
Volume					768	271	149	52				122
Demand -Simulated Volume					-50	-12	-3	1				2
Percentage (%)					-6%	-4%	-2%	2%				2%
Delay (sec/veh)					0	1	7	13				11
Delay (sec/veh)				0.3			8.6			10.6		
Max queue (ft)					0	0	100	94				119
							Intersection Delay (sec/veh)				2.5	

PM Build: Intersection MOEs (VISSIM)

SW 8th St at SW 8th Ave	SW 8th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	233	1,406	31	0	0	0	0	154	44	157	190	0
Volume	227	1,401	31					156	39	162	191	
Demand -Simulated Volume	-6	-5	0					2	-5	5	1	
Percentage (%)	-3%	0%	0%					1%	-11%	3%	1%	
Delay (sec/veh)	29	25	22					30	20	12	11	
Delay (sec/veh)	25.8						28.4			11.3		
Max queue (ft)	526	526	552					228	260	244	228	
							Intersection Delay (sec/veh)			23.7		

SW 8th St at SW 5th Ave	SW 8th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	243	1,316	48	0	0	0	0	183	370	0	0	0
Volume	251	1,336	47					175	367			
Demand -Simulated Volume	8	20	-1					-8	-3			
Percentage (%)	3%	2%	-2%					-4%	-1%			
Delay (sec/veh)	38	32	25					31	26			
Delay (sec/veh)	33.1						27.4					
Max queue (ft)	619	619	607					613	640			
							Intersection Delay (sec/veh)			31.7		

SW 8th St at SW 4th Ave	SW 8th St						SW 4th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,609	77	0	0	0	0	0	0	220	654	0
Volume		1,623	80							201	620	
Demand -Simulated Volume		14	3							-19	-34	
Percentage (%)		1%	4%							-9%	-5%	
Delay (sec/veh)		17	11							25	27	
Delay (sec/veh)	17.0									26.3		
Max queue (ft)		375	408							328	328	
							Intersection Delay (sec/veh)			20.0		

SW 8th St at SW 3rd Ave/I-95 NB Off-On Ramp	SW 8th St						SW 3rd Ave/I-95 NB Off-On Ramp					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	105	1,060	0	0	0	0	0	553	392	27	0	0
Volume	103	1,018						466	336	21		
Demand -Simulated Volume	-2	-42						-87	-56	-6		
Percentage (%)	-2%	-4%						-16%	-14%	-22%		
Delay (sec/veh)	45	38						272	257	31		
Delay (sec/veh)	38.5						265.8			30.6		
Max queue (ft)	557	561						3,540	3,557	52		
							Intersection Delay (sec/veh)			132.2		

SW 8th St at SW 2nd Ave	SW 8th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	395	1,412	469	0	0	0	0	1,120	106	200	482	0
Volume	360	1,327	451					902	79	193	468	
Demand -Simulated Volume	-35	-85	-18					-218	-27	-7	-14	
Percentage (%)	-9%	-6%	-4%					-19%	-25%	-4%	-3%	
Delay (sec/veh)	10	25	24					173	164	90	40	
Delay (sec/veh)	22.4						172.5			54.8		
Max queue (ft)	250	651	505					2,562	2,576	387	357	
							Intersection Delay (sec/veh)			67.0		

SW 8th St at SW 1st Ave	SW 8th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	1,296	422	0	0	0	0	0	0	180	932	0
Volume		1,200	393							173	923	
Demand -Simulated Volume		-96	-29							-7	-9	
Percentage (%)		-7%	-7%							-4%	-1%	
Delay (sec/veh)		9	13							13	11	
Delay (sec/veh)	10.3									11.1		
Max queue (ft)		329	354							259	259	
							Intersection Delay (sec/veh)			10.6		

SW 8th St at S Miami Ave	SW 8th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	342	1,134	0	0	0	0	0	884	66	0	0	0
Volume	312	1,064						901	64			
Demand -Simulated Volume	-30	-70						17	-2			
Percentage (%)	-9%	-6%						2%	-3%			
Delay (sec/veh)	58	35						35	35			
Delay (sec/veh)	40.0						35.1					
Max queue (ft)	551	551						432	434			
							Intersection Delay (sec/veh)			38.0		

PM Build: Intersection MOEs (VISSIM)

SW 7th St at S Miami Ave	SW 7th St						S Miami Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,290	145	556	670	0	0	0	0
Volume					1,121	124	537	654				
Demand -Simulated Volume					-169	-21	-19	-16				
Percentage (%)					-13%	-14%	-3%	-2%				
Delay (sec/veh)					186	197	30	29				
Delay (sec/veh)					187.2			29.5				
Max queue (ft)					2,327	2,344	331	331				
							Intersection Delay (sec/veh)				110.1	

SW 7th St at SW 1st Ave	SW 7th St						SW 1st Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	272	1,574	0	0	0	0	0	840	372
Volume				238	1,376						855	365
Demand -Simulated Volume				-34	-198						15	-7
Percentage (%)				-13%	-13%						2%	-2%
Delay (sec/veh)				53	52						47	31
Delay (sec/veh)					51.8						41.9	
Max queue (ft)				581	581						521	524
							Intersection Delay (sec/veh)				47.6	

SW 7th St at SW 2nd Ave	SW 7th St						SW 2nd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	100	1,568	278	425	1,090	0	0	582	428
Volume				86	1,383	239	356	914			572	423
Demand -Simulated Volume				-14	-185	-39	-69	-176			-10	-5
Percentage (%)				-14%	-12%	-14%	-16%	-16%			-2%	-1%
Delay (sec/veh)				87	73	63	30	11			77	61
Delay (sec/veh)					72.5			15.9			69.7	
Max queue (ft)				818	818	835	387	374			965	994
							Intersection Delay (sec/veh)				53.7	

SW 7th St at SW 3rd Ave	SW 7th St						SW 3rd Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	27	962	392	375	283	0	0	0	0
Volume				21	853	343	326	239				
Demand -Simulated Volume				-6	-109	-49	-49	-44				
Percentage (%)				-22%	-11%	-13%	-13%	-16%				
Delay (sec/veh)				9	16	17	32	24				
Delay (sec/veh)					16.6			28.3				
Max queue (ft)				471	471	499	379	366				
							Intersection Delay (sec/veh)				20.3	

SW 7th St at SW 4th Ave/I-95 SB Off	SW 7th St						SW 4th Ave						I-95 SB Off		
	Eastbound			Westbound			Northbound			Southbound			Southwestbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	SWBL	SWBT	SWBR
Demand Volume	0	0	0	231	1,106	0	0	0	0	0	312	42	331	0	1208
Volume				203	959						301	39	330		1,190
Demand -Simulated Volume				-28	-147						-11	-3	-1		-18
Percentage (%)				-12%	-13%						-4%	-7%	0%		-1%
Delay (sec/veh)				55	56						208	218	49		58
Delay (sec/veh)					56.2						209.1			56.3	
Max queue (ft)				541	541						669	669	2,424		2,424
										Intersection Delay (sec/veh)				73.5	

SW 7th St at SW 8th Ave	SW 7th St						SW 8th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	74	2,160	116	128	259	0	0	273	88
Volume				69	2,032	111	132	252			283	90
Demand -Simulated Volume				-5	-128	-5	4	-7			10	2
Percentage (%)				-7%	-6%	-4%	3%	-3%			4%	2%
Delay (sec/veh)				25	25	25	24	25			28	24
Delay (sec/veh)					24.8			24.7			26.8	
Max queue (ft)				677	677	698	359	359			469	485
							Intersection Delay (sec/veh)				25.0	

SW 7th St at SW 5th Ave	SW 7th St						SW 5th Ave					
	Eastbound			Westbound			Northbound			Southbound		
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Demand Volume	0	0	0	0	1,882	474	348	78	0	0	0	120
Volume					1,744	444	347	78				122
Demand -Simulated Volume					-138	-30	-1	0				2
Percentage (%)					-7%	-6%	0%	0%				2%
Delay (sec/veh)					1	1	19	27				22
Delay (sec/veh)					0.7			20.8			22.4	
Max queue (ft)					0	0	309	118				135
							Intersection Delay (sec/veh)				4.8	

VISSIM 15-Minute Volume Flow Rates

SR 90/SW 8th Street and SW 7th Street 2045 No Build & Build - VISSIM AM Peak Period Volume Input

			70%	70%	70%	80%	80%	90%	95%	100%	105%	100%	80%	75%	65%	60%	65%	60%	60%	55%
Input Name	**Link Number**	**Pk-Hour**	**0-900**	**900-1800**	**1800-2700**	**2700-3600**	**3600-4500**	**4500-5400**	**5400-6300**	**6300-7200**	**7200-8100**	**8100-9000**	**9000-9900**	**9900-10800**	**10800-11700**	**11700-12600**	**12600-13500**	**13500-14400**	**14400-15300**	**15300-16200**
8th Street EB	71	1956	1369	1369	1369	1565	1565	1760	1858	1956	2054	1956	1565	1467	1271	1174	1271	1174	1174	1076
8th Avenue NB	76	265	186	186	186	212	212	239	252	265	278	265	212	199	172	159	172	159	159	146
8th Avenue SB	102	463	324	324	324	370	370	417	440	463	486	463	370	347	301	278	301	278	278	255
5th Avenue NB	99	695	487	487	487	556	556	626	660	695	730	695	556	521	452	417	452	417	417	382
5th Avenue SB	105	120	84	84	84	96	96	108	114	120	126	120	96	90	78	72	78	72	72	66
4th Avenue SB	45	300	210	210	210	240	240	270	285	300	315	300	240	225	195	180	195	180	180	165
3rd Avenue NB	64	398	279	279	279	318	318	358	378	398	418	398	318	299	259	239	259	239	239	219
2nd Avenue NB	86	1260	882	882	882	1008	1008	1134	1197	1260	1323	1260	1008	945	819	756	819	756	756	693
2nd Avenue SB	78	942	659	659	659	754	754	848	895	942	989	942	754	707	612	565	612	565	565	518
S Miami Avenue NB	96	860	602	602	602	688	688	774	817	860	903	860	688	645	559	516	559	516	516	473
1st Avenue SB	90	1189	832	832	832	951	951	1070	1130	1189	1248	1189	951	892	773	713	773	713	713	654
8th Street WB	92	792	554	554	554	634	634	713	752	792	832	792	634	594	515	475	515	475	475	436
I-95 NB	2	3675	2573	2573	2573	2940	2940	3308	3491	3675	3859	3675	2940	2756	2389	2205	2389	2205	2205	2021
Rickenbacker Causeway NB	3	983	688	688	688	786	786	885	934	983	1032	983	786	737	639	590	639	590	590	541
SW 25th Road NB	4	983	688	688	688	786	786	885	934	983	1032	983	786	737	639	590	639	590	590	541
Downtown Distributor SB	25	1143	800	800	800	914	914	1029	1086	1143	1200	1143	914	857	743	686	743	686	686	629
Downtown Distributor NB	36	488	342	342	342	390	390	439	464	488	512	488	390	366	317	293	317	293	293	268
NW 2nd Street SB	37	610	427	427	427	488	488	549	580	610	641	610	488	458	397	366	397	366	366	336
I-95 SB	54	6382	4467	4467	4467	5106	5106	5744	6063	6382	6701	6382	5106	4787	4148	3829	4148	3829	3829	3510

SR 90/SW 8th Street and SW 7th Street 2045 No Build & Build - VISSIM PM Peak Period Volume Input

Input Name	Link Number	Pk-Hour	60% 0-900	60% 900-1800	60% 1800-2700	70% 2700-3600	70% 3600-4500	80% 4500-5400	95% 5400-6300	100% 6300-7200	105% 7200-8100	100% 8100-9000	85% 9000-9900	80% 9900-10800	70% 10800-11700	65% 11700-12600	70% 12600-13500	65% 13500-14400	65% 14400-15300	60% 15300-16200
8th Street EB	71	1670	1002	1002	1002	1169	1169	1336	1587	1670	1754	1670	1420	1336	1169	1086	1169	1086	1086	1002
8th Avenue NB	76	198	119	119	119	139	139	158	188	198	208	198	168	158	139	129	139	129	129	119
8th Avenue SB	102	361	217	217	217	253	253	289	343	361	379	361	307	289	253	235	253	235	235	217
5th Avenue NB	99	553	332	332	332	387	387	442	525	553	581	553	470	442	387	359	387	359	359	332
5th Avenue SB	105	120	72	72	72	84	84	96	114	120	126	120	102	96	84	78	84	78	78	72
4th Avenue SB	45	354	212	212	212	248	248	283	336	354	372	354	301	283	248	230	248	230	230	212
3rd Avenue NB	64	610	366	366	366	427	427	488	580	610	641	610	519	488	427	397	427	397	397	366
2nd Avenue NB	86	1226	736	736	736	858	858	981	1165	1226	1287	1226	1042	981	858	797	858	797	797	736
2nd Avenue SB	78	1010	606	606	606	707	707	808	960	1010	1061	1010	859	808	707	657	707	657	657	606
S Miami Avenue NB	96	950	570	570	570	665	665	760	903	950	998	950	808	760	665	618	665	618	618	570
1st Avenue SB	90	1212	727	727	727	848	848	970	1151	1212	1273	1212	1030	970	848	788	848	788	788	727
8th Street WB	92	1435	861	861	861	1005	1005	1148	1363	1435	1507	1435	1220	1148	1005	933	1005	933	933	861
I-95 NB	2	2070	1242	1242	1242	1449	1449	1656	1967	2070	2174	2070	1760	1656	1449	1346	1449	1346	1346	1242
Rickenbacker Causeway NB	3	593	356	356	356	415	415	474	563	593	623	593	504	474	415	385	415	385	385	356
SW 25th Road NB	4	594	356	356	356	416	416	475	564	594	624	594	505	475	416	386	416	386	386	356
Downtown Distributor SB	25	1338	803	803	803	937	937	1070	1271	1338	1405	1338	1137	1070	937	870	937	870	870	803
Downtown Distributor NB	36	2904	1742	1742	1742	2033	2033	2323	2759	2904	3049	2904	2468	2323	2033	1888	2033	1888	1888	1742
NW 2nd Street SB	37	1044	626	626	626	731	731	835	992	1044	1096	1044	887	835	731	679	731	679	679	626
I-95 SB	54	5627	3376	3376	3376	3939	3939	4502	5346	5627	5908	5627	4783	4502	3939	3658	3939	3658	3658	3376

Appendix F

TRAVEL DEMAND FORECASTING MEMORANDUM

Base- and Future-Year Models

SR 9/I 95 Corridor-wide Planning for Operational Deficiencies: U.S. 1/SR 5 to Broward County Line

design traffic

technical memorandum
(updated July 2019)

prepared for

Florida Department of Transportation—District 6

prepared by

Cambridge Systematics, Inc.

with

Kimley-Horn and Associates, Inc.

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date

Updated July 2019

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1.0 Overview

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2.0 Description of the 2015 and 2045 Models
3.0 Summary of Regional Model Sensitivity Tests
4.0 Subarea Travel Model Calibration and Validation
5.0 Future-Year Forecasts

Interstate 95 is the most highly traveled corridor in South Florida with over 250,000 vehicles traveling through parts of the corridor daily within Miami-Dade County. With significant long-term population growth projected in the region, travel demand in this corridor is expected to continue to increase over the next 20 years. Geometric expansion opportunities along the corridor are limited as little or no additional right-of-way is available and existing bridge structures generally cannot accommodate roadway expansion. Managed lanes were constructed along the corridor from the Golden Glades Interchange to south of Interstate 95/SR 112 (95 Express—Phase 1) and opened in both directions in 2010. As part of Phase 1 implementation, ramp metering and express bus service were also implemented along the corridor. Phase 2 of the 95 Express lanes is currently under construction and will extend the managed lanes facility to the north in Broward County.

The objective of this project is to develop and evaluate improvement concepts and perform a detailed planning-level operational analysis for the Interstate 95 corridor within District 6. The analysis will include the evaluation of all interchanges, interchange influence areas, and ramp junctions, as well as postimplementation operational conditions of the 95 Express corridor improvements. The purpose of this evaluation will be to identify deficiencies focusing on reoccurring bottlenecks and develop a series of proposed improvements to address the existing and future demands of the corridor. If necessary, multiple improvement alternatives will be developed for the mainline, interchange areas, and system-to-system connections.

The main purpose for the future traffic projections that are described in this memorandum is to provide travel demand trip tables of the AM (6:00 to 10:00) and PM (3:00 to 7:00) periods for the corridor level operational models (Vissim) that will be used to identify the travel characteristics of the I-95 corridor. In addition, the peak-hour traffic volumes will be developed and used to prepare improvement concepts for roadway typical sections, interchange, and intersection designs. This memorandum describes the travel demand model calibration methods and peak hour results specific to the development of demands for the study and the modeling results for the base case, the “No Build” scenario and the Refined Build Concept scenario. A technical memorandum entitled “Travel Demand Forecasting: I-95 Corridor-wide Planning for Operational Deficiencies: U.S. 1/SR 5 to Broward County Line” was prepared and submitted earlier that describes the approach and methodology utilized for this study (see Appendix A).

2.0 Description of the Base and Future Models

2.1 Base 2015 and 2045 No Build Model Assumptions

SERPM 7.0 Version—The model dataset that was officially released on March 13, 2015, is the version of the SERPM 7.0 model that forms the basis for all of the forecasts. There were two model year datasets supplied for this study:

- Base Year 2010.
- Year 2040 Cost Feasible Scenario.

Highway Networks—Modifications to the CUBE highway networks were made for the study as described below.

- **2015 Network Assumptions—**The base year 2010 highway network was updated within the I-95 corridor to its configuration as of the spring of 2015 to be consistent with the traffic counts that were collected for this study. This included the following change(s) to the network:
  - I-95 north of the Golden Glades interchange is assumed to be operated as general purpose (GP) with no distinction between Toll and GP Lanes.
- **2045 No Build Network Assumptions—**To develop a Year 2045 No Build highway network the following I-95 corridor projects were added to the base year 2015 network.
  - I-95 Express Toll Lanes were extended north of the Golden Glades to the Broward County line.
  - Golden Glades Interchange Improvements: SR 826 EB to I-95 NB ramp.
  - MDX SR 836/I-95 Improvements (Alternative 11A).
  - SR 836/I-395 improvements:
    - » New eastbound connector providing access from NW 12 Avenue area to eastbound SR 836.
    - » New EB connector providing access from NW 12 Avenue area to northbound I-95.
    - » Existing EB entrance ramps at NW 12 Avenue connected to new EB connector.
    - » New westbound elevated connector providing access from SB I-95 to WB I-395/SR 836 and to Civic Center.

Transit Networks—Updates to the transit network were made to be consistent with the aforementioned highway updates. This included the rerouting of bus lines based on the new designs, but did not include any transit system "upgrades." The transit component of the regional transportation system is not considered a critical factor for this study as the mode share for transit in the region is around 2.5 percent of the total person trips, which is well below the typical level of model "noise."

Land Use/Socioeconomic Data—Table 2.1 summarizes the 2010 and 2040 land use and socioeconomic input data by County as well as for the entire model area used for this study.

Table 2.1 Land Use/Socioeconomic Input Data

County Name	Households	Population	Workers	Employees
Year 2010				
Palm Beach	547,809	1,277,763	557,840	638,068
Broward	686,054	1,695,935	806,839	871,451
Miami-Dade	867,352	2,393,373	1,080,077	1,125,068
Total	**2,101,215**	**5,367,071**	**2,444,756**	**2,634,587**
Year 2040				
Palm Beach	684,924	1,616,282	714,832	840,486
Broward	834,830	2,057,502	987,599	921,516
Miami-Dade	1,156,802	3,093,936	1,551,289	1,636,614
Total	**2,676,556**	**6,767,720**	**3,253,720**	**3,398,616**
Percent Growth				
Palm Beach	25%	26%	28%	32%
Broward	22%	21%	22%	6%
Miami-Dade	33%	29%	44%	45%
Total	**27%**	**26%**	**33%**	**29%**

2.2 2045 Refined Build Concept Model Assumptions

For the 2045 Refined Build Concept scenario forecast the following inputs were used:

SERPM 7.0 Version—The same model dataset that was used for the Base-Year and Future-Year No Build scenarios was utilized for the Refined Build Concept.

Highway Networks—Modifications to the CUBE highway networks within the study corridor were made for the study as described in the Concept Development Plan. All network assumptions outside of the study corridor were consistent with the 2045 No Build scenario.

Transit Networks—Updates to the transit network were made to be consistent with the Refined Build Concept highway updates. This included the rerouting of bus lines based on the new designs but did not include any transit system “upgrades.”

Land Use/Socioeconomic Data—The same model dataset that was used for the Base-Year and Future-Year No Build scenarios was utilized for the Refined Build Concept.

3.0 Summary of Regional Model Sensitivity Tests

A series of model sensitivity checks were performed to confirm that the models provide consistent forecasts when some of the major input assumptions are varied. Sensitivity testing was recommended for this project as this is the one of the first major applications of the newly developed SERPM 7.0 model, an advanced travel demand model. These additional checks were developed to ensure the accuracy, consistency and reliability of the activity-based model (ABM) with regard to forecasts of demand within the study corridor under different input and model application assumptions.

Comparisons of model outputs among the model tests were then made in order to quantify the differences related to different input assumptions and ensure that the model behaved logically, (e.g., an increase in tolls results in reduced toll facility use). There are no standards for these types of comparisons. The sensitivity tests were structured in order to address the model's capabilities at adequately responding to the study alternatives once defined. The sensitivity tests performed included the following:

- **Sample Rate—**One of the user specified input assumptions for the advanced SERPM 7.0 model is the sample rate. The sample rate specifies what percentage of the population will be synthesized. A smaller sample rate can significantly reduce model run times. There is no standard for what the sample rate should be. The Southeast Regional Planning Model 7.0 Activity-Based Model Users Guide dated March 2015 states that, "The CT-RAMP model can be run for any iteration, and at any sample rate. It is useful to run these models at a sample rate of 20 to 25 percent for calibration in order to reduce runtimes without compromising the statistical reliability of the sample."

  To test the reliability and variability of the model outputs, a set of base year forecasts using different sample sizes of 10 percent, 25 percent, and 50 percent were performed and the outputs compared. Table 3.1 compares two key model metrics; Corridor level Vehicle Miles of Travel (VMT) and Vehicle Hours of Travel (VHT). The results indicate that the model behaves in a consistent manner with respect to sample rate assumptions. The changes in model outputs in all categories tested are all less than 2 percent.

  For this study, the sample rate was set at 50 percent for all of the forecasts to provide the most robust set of data.

Table 3.1 Comparison of Model Outputs with Varying Sample Rates

VMT/VHT

	10% Sample Size			
	Vehicle Miles		Vehicle Hours	
Period	Auto	Truck	Auto	Truck
Early AM	499,306	48,638	8,461	941
AM	1,094,693	65,743	33,594	1,906
MD	1,490,525	183,512	34,481	4,164
PM	1,368,067	112,026	43,608	3,469
Evening	767,501	46,037	16,669	973
Total	**5,160,091**	**455,955**	**136,812**	**11,452**

	25% Sample Size				Change over 10% Sample Size			
	Vehicle Miles		Vehicle Hours		Vehicle Miles		Vehicle Hours	
Period	Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
Early AM	439,132	48,558	8,456	940	-0.04%	-0.16%	-0.05%	-0.16%
AM	1,090,432	66,120	33,144	1,902	-0.39%	0.57%	-1.34%	-0.25%
MD	1,494,926	182,931	34,577	4,156	0.30%	-0.32%	0.28%	-0.20%
PM	1,374,176	111,428	43,789	3,469	0.45%	-0.53%	0.42%	0.02%
Evening	760,724	46,075	16,460	970	-0.88%	0.08%	-1.26%	-0.26%
Total	**5,159,389**	**455,112**	**136,427**	**11,436**	**-0.01%**	**-0.18%**	**-0.28%**	**-0.14%**

	50% Sample Size				Change over 10% Sample Size			
	Vehicle Miles		Vehicle Hours		Vehicle Miles		Vehicle Hours	
Period	Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
Early AM	433,917	48,592	8,355	941	-1.23%	-0.09%	-1.25%	-0.08%
AM	1,098,217	65,870	33,589	1,907	0.32%	0.19%	-0.01%	0.04%
MD	1,487,850	183,852	34,218	4,155	-0.18%	0.19%	-0.76%	-0.22%
PM	1,378,949	111,066	44,123	3,471	0.80%	-0.86%	1.18%	0.06%
Evening	764,979	45,985	16,589	970	-0.33%	-0.11%	-0.48%	-0.26%
Total	5,163,912	455,365	136,874	11,443	0.07%	-0.13%	0.05%	-0.08%

- **Roadway Capacity Change—**The model was also tested with regard to how it behaves when capacity is added to the I-95 corridor. For this sensitivity run, a general purpose lane was added in both directions for the length of the study corridor. Table 3.2 compares corridor level VMT and VHT to the base condition. As expected, there is an increase in VMT as more capacity is made available in this highly congested corridor. VMT is estimated to increase by 5 to 6 percent for autos and trucks on a daily basis. The largest increases are estimated to occur in the AM and PM peak periods when congestion is at its highest. There is no significant change in estimated VHT, which indicates that average speeds have increased in all time periods. These results indicate that the model is behaving appropriately with the capacity change.

Table 3.2 Comparison of VMT/VHT with Added I-95 Capacity

	Base Condition			
	Vehicle Miles		Vehicle Hours	
Period	Auto	Truck	Auto	Truck
Early AM	0.12%	-0.76%	0.38%	-0.32%
AM	7.19%	8.02%	1.18%	-0.56%
MD	3.82%	5.56%	-1.27%	-1.32%
PM	8.27%	9.98%	0.18%	-1.76%
Evening	3.45%	2.21%	0.28%	-1.10%
Total	**5.36%**	**5.98%**	**0.09%**	**-1.23%**

- **Express Toll Lane Price—**A third model sensitivity run was made to test the model's sensitivity to toll rates. For this model run, the I-95 managed lane toll rate was doubled throughout the corridor. One indicator of the model's response to this change is to look at mode shares. Table 3.3 compares the person trip mode shares between the base condition and the scenario with the tolls increased. On a regional basis, the model responds to the increase in I-95 toll rates by shifting travel choices from the drive alone mode to the shared ride modes, and in the AM period to transit as well. This is an expected response to increased costs.

Table 3.3 Comparison of Mode Shares with Increased I-95 Toll Rates

	Base Condition			
Period	Drive Alone	Shared Ride 2 Persons	Shared Ride 3+ Persons	Transit
Early AM	-0.04%	0.03%	0.01%	0.01%
AM	-0.05%	0.02%	0.01%	0.01%
MD	-0.02%	0.01%	0.00%	0.00%
PM	-0.02%	0.01%	0.02%	0.00%
Evening	0.00%	-0.01%	0.00%	0.00%
Total	**-0.02%**	**0.01%**	**0.01%**	**0.00%**

Looking at vehicular travel within the corridor, the model also responds in an expected way. Table 3.4 compares VMT and VHT at the corridor level between the base and increased toll scenario. The largest change occurs during the peak periods where auto VMT is estimated to decrease by at least 2 percent in both periods while truck VMT remains fairly constant as trucks are not allowed in the toll lanes and are less likely to divert out of the corridor due to increased general purpose lane congestion. There is also a slight increase in auto VMT in the Early AM period indicating that some auto trips choose an earlier departure time to avoid the higher tolls. Overall, the increased tolls results in a daily decrease in traffic within the corridor; about 1.42 percent fewer auto-miles traveled and less than 1 percent reduction in truck vehicle-miles traveled. Likewise, vehicle hours of travel also decrease at a similar level.

Table 3.4 Comparison of VMT/VHT with Increased I-95 Toll Rates

	Base Condition			
Period	Auto VMT	Truck VMT	Auto VHT	Truck VHT
0.16%	-1.33%	0.42%	-0.85%	
-2.15%	0.23%	-1.62%	-0.47%	
-0.79%	-1.21%	-0.58%	-0.96%	
-2.06%	0.16%	-1.25%	-0.10%	
-1.36%	-1.29%	-0.92%	-0.91%	
-1.42%	-0.69%	-1.03%	-0.60%	

4.0 Subarea Model Travel Demand Calibration

To better replicate existing roadway operating conditions and to be able to provide calibrated Origin-Destination (O-D) trip tables to the microsimulation models that will be used to perform operational analysis within the I-95 corridor subarea, the travel demands were calibrated for each of the hours within the AM and PM peak periods. Figure 4.1 shows the extents of the subarea model generally defined as 1 signalized intersection east and west of an I-95 interchange. The calibration was an iterative process that involved refining the demands in the static equilibrium assignment environment (SERPM 7.0) using O-D matrix estimation (ODME) techniques and then testing the operations of these demands within the Vissim simulation model. This process was performed until the error between the estimated traffic and the observed traffic data was minimized and validation criteria were satisfied. The process results in trip tables that are consistent with the overall patterns assumed in the seed tables from SERPM 7.0, but are a better match to the observed traffic counts.

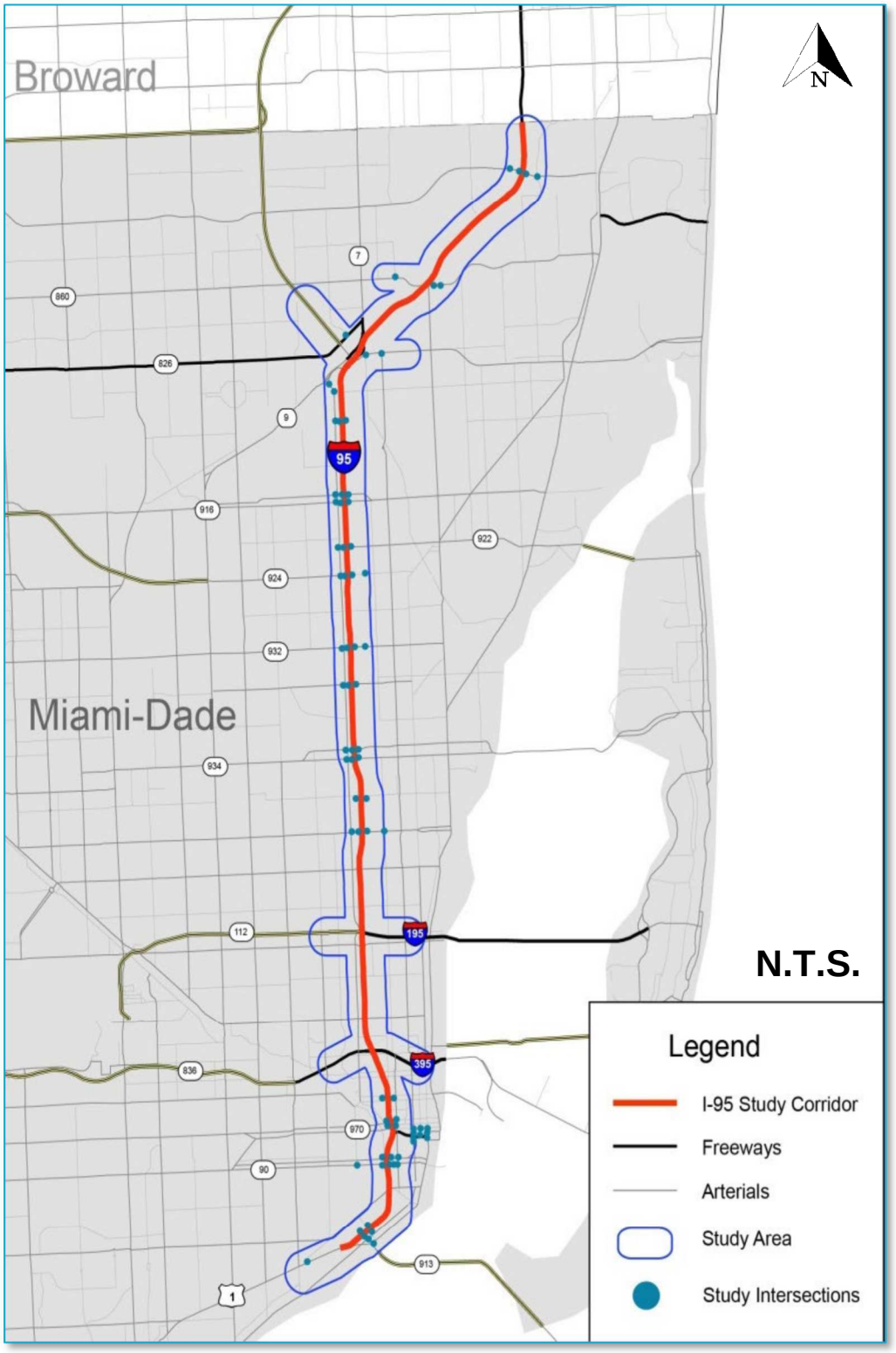
4.1 Seed Trip Tables

As described in the methodology report previously referenced, hourly trip tables were developed for the subarea model to better capture peak conditions within the I-95 corridor and to improve the discretization of the travel demands. The approach was to utilize the time-of-day information already estimated within SERPM 7.0. Embedded within the regional model is a choice model for time-of-day that estimates each journey by direction with half-hour resolution (centered 30-minute intervals) for the entire 24-hour period. This time-of-day information allows for the compilation of hourly trip tables throughout the 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. study periods for the entire region. I-95 corridor specific travel demands for 8 hours, (4 hours a.m. and 4 hours p.m.) were produced by subarea extraction.

4.2 Traffic Count Data

Traffic count data from a variety of sources and dates was assembled for the roadway links, but was specifically collected for this project for the 77 study intersections, most at I-95 interchanges. As the data is from many different times of year, different highway configurations and different collection methods, a count normalization or balancing process was undertaken. The process to develop the final set of counts for validation is described below.

Figure 4.1 I-95 Corridor Subarea Extents



4.2.1 Traffic Data Sources

- **Automated Traffic Recorder (ATR) Tube Counts—**Available hourly ATR tube counts were assembled for freeway and arterial roadways in the corridor. An average of 2 to 3 days was used for each location depending on availability. Some ATR locations only had a single day of data available. Hourly vehicle classification counts were not available for the ATRs. The ATR counts were collected for AM peak period (6:00 to 10:00 a.m.) and PM Peak period (3:00 to 7:00 p.m.). As hourly vehicle classification data was not available for the ATR counts, truck percentages were estimated from the adjacent turning movement counts at intersections. Based on these truck percentages, hourly auto and truck counts were synthesized for all locations.

- **Sunguide Data—**Average volume and speed data from Sunguide detectors for three days in March 2015 were assembled. The Sunguide data was captured for the AM Peak period (6:00 to 10:00 a.m.) and PM Peak period (3:00 to 7:00 p.m.).

- **Turning Movement Counts (TMC)—**Turning movement counts for the 77 study intersections were collected for this analysis. Classified TMC data (autos and trucks) was recorded at these intersections for two hours in each peak period: AM period from 7:00 to 9:00 a.m. and PM period from 4:00 to 6:00 p.m. As the turning movement counts were only available for two hour periods during the peak periods, the turning movement counts for the shoulder hours were synthesized based on adjacent ramp and/or arterial ATR tube counts.

  The TMCs were geocoded to the subarea model network and total inflow and outflow volumes for each approach link were calculated. These link volumes were added to the master link count database.

4.2.2 Traffic Count Balancing

There is a variability of traffic that is a result of natural day-to-day fluctuations in traffic demand, day of the week demand fluctuations, seasonal traffic demand effects, weather impacts on traffic flows, incident effects across the roadway network, or even counter error. If long-term counts are available from permanent count stations, which provide the count for each day, the true average weekday volume could be calculated and a typical day selected. The majority of the traffic count data available for use was short-term traffic counts, often only one or two days in duration. Given the limited number of observations, it is not known where that single observation compares to the true average volume flows.

A common procedure deployed in traffic simulation modeling to sort through this variability in traffic counts not collected concurrently is to develop a set of balanced traffic counts or balanced flows, from the raw traffic counts, which is thought to represent the average conditions. A flow balancing procedure consists of adjusting the observed traffic counts to minimize the differences between count locations where major roadways and sources or sinks of traffic flows (e.g., interchanges, driveway access to offices, retail, or other locations of activity that generate or attract vehicle trips) do not exist. The goal of “conservation of vehicles” along the network is also required to be consistent with any O-D based assignment as is used for this study. When balanced flows are used as inputs to the matrix calibration procedure, the output is generally a set of O-D tables that provides a better statistical fit to the traffic counts.

After all of the link and intersection based traffic data from all of the sources was geocoded to the subarea model network, the flow balance of the counts on the network were reviewed and adjustments were made to ensure that major imbalances between neighboring counts were eliminated.

This process ensures that the O-D trip tables that the Vissim models will utilize will result in the best fit of the travel demands for the entire corridor and produce a close match to the prevailing traffic conditions in the corridor.

Appendix B shows the Base-Year 2015 link-by-link balanced traffic flows for the entire study area, as well as the balanced TMCs for the base year for the 77 study intersections.

4.2.3 O-D Survey Data

There was no current observed O-D data available that was relevant for this study in terms of the modeled highway configuration for the base year.

4.3 Validation Results

As explained in the model methodology memorandum in Appendix A, Florida Department of Transportation (FDOT) standard measures of travel demand assignment validation were used to compare the assigned volumes to observed traffic counts within the subarea model. These measures can confirm that the travel model is representing the demand for the corridor accurately and when the trips that result from this process are assigned within the Vissim models that the existing traffic operating conditions will be replicated to an acceptable level.

The results of the O-D travel demand calibration process appear below. A number of measures were utilized to describe how well the assignment of the calibrated trip tables for the subarea matched the observed traffic count data.

4.3.1 Volume over Count (VOC)—Functional Class

Table 4.1 shows the results of the subarea assignments as compared to the observed traffic counts by functional class for each of the hours modeled. Although the Percent Deviation Targets as recommended by FDOT are meant for average weekday traffic VOCs, it is still useful to provide this validation check in order to ensure that the subarea models are well calibrated throughout the day for all functional classes, not just the freeways. All of the assignments produce traffic volumes that meet the functional class targets.

Table 4.1 Base-Year Subarea Validation
Hourly VOC by Functional Class

Functional Class	AM (6 to 7)	AM (7 to 8)	AM (8 to 9)	AM (9 to 10)	PM (3 to 4)	PM (4 to 5)	PM (5 to 6)	PM (6 to 7)	Percent Deviation Target
Freeway	-0.8%	-0.7%	-0.9%	-0.7%	-1.4%	-0.4%	-0.7%	-0.5%	±7%
Ramps[1]	5.3%	2.6%	1.8%	2.6%	4.9%	1.9%	3.9%	3.6%	±10%
Divided Arterial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	±15%
Undivided Arterial	1.7%	1.5%	1.6%	1.8%	1.9%	1.2%	1.3%	1.1%	±15%
Collector	1.0%	1.3%	0.6%	-0.1%	-0.7%	-0.4%	-0.9%	-0.7%	±25%
One-Way/Frontage Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	±25%

Source: Cambridge Systematics, 2015.

[1] FDOT does not publish targets for ramps.

An additional statistical measure that is more appropriate for hourly volumes is to look at the peak-hour VOC targets from FDOT. Standards are available for two categories of roadway types: freeways and major arterials. The standards are:

- Freeway Peak VOC:
  - 75% of links ±20%.
  - 50% of links ±10%.
- Major Arterial Peak VOC:
  - 75% of links ±30%.
  - 50% of links ±15%.

Table 4.2 shows the performance of the hourly subarea models after calibration. All freeway and major arterial links for all eight hours are within the standards for peak hour VOCs.

Table 4.2 Base Year Subarea Validation

Hourly VOC Targets for Freeways and Major Arterials

Functional Class	PM (6 to 7)	AM (7 to 8)	AM (8 to 9)	AM (9 to 10)	PM (3 to 4)	PM (4 to 5)	PM (5 to 6)	PM (6 to 7)	Target
Freeway									
% Links ±20%	100%	100%	99%	99%	100%	100%	99%	100%	75%
% Links ±10%	94%	99%	95%	95%	92%	97%	96%	94%	50%
Major Arterial									
% Links ±30%	95%	99%	95%	96%	96%	98%	99%	95%	75%
% Links ±15%	92%	95%	91%	93%	94%	97%	96%	92%	50%

Source: Cambridge Systematics, Inc., 2015.

4.3.2 Volume over Count (VOC)—Volume Groups

Another comparison of the estimated traffic volumes and the counts was made for different levels of traffic volumes otherwise known as volume groups. Although there are no validation criteria for the Percent Root Mean Square Error (%RMSE) for volume group at the hourly level, the criteria for average daily traffic (ADT) from FDOT's Project Traffic Forecasting Handbook were used to compare the forecasted hourly traffic volumes to the observed hourly counts. Table 4.3 and Table 4.4 show the computed %RMSE for the AM and PM hours respectively. The tables show that the model volumes are well within the criteria established for volume groups.

Table 4.3 Base-Year Subarea Validation—AM Period

Traffic Assignment Accuracy Levels—%RMSE

Measure	AM (6 to 7)	AM (7 to 8)	AM (8 to 9)	AM (9 to 10)	Standards: Acceptable	Standards: Preferable
Hourly Volume						
0–5,000	13.2%	11.0%	13.2%	12.1%	100%	45%
5,000–10,000	2.8%	2.3%	2.7%	2.4%	45%	35%
10,000–15,000	N/A	0.9%	2.1%	N/A	35%	27%
15,000–20,000	N/A	N/A	N/A	N/A	30%	25%
20,000–30,000	N/A	N/A	N/A	N/A	27%	15%
30,000–50,000	N/A	N/A	N/A	N/A	25%	15%
50,000–60,000	N/A	N/A	N/A	N/A	20%	10%
> 60,000	N/A	N/A	N/A	N/A	19%	10%
Corridor Wide	**9.6%**	**6.9%**	**8.0%**	**7.7%**	**45%**	**35%**

Source: Cambridge Systematics, Inc., 2015.

Table 4.4 Base Year Subarea Validation—PM Period

Traffic Assignment Accuracy Levels—%RMSE

Measure	AM (6 to 7)	AM (7 to 8)	AM (8 to 9)	AM (9 to 10)	Standards: Acceptable	Standards: Preferable
Hourly Volume						
0–5,000	10.6%	9.7%	10.4%	11.3%	100%	45%
5,000–10,000	3.1%	2.7%	2.5%	3.3%	45%	35%
10,000–15,000	N/A	N/A	N/A	N/A	35%	27%
15,000–20,000	N/A	N/A	N/A	N/A	30%	25%
20,000–30,000	N/A	N/A	N/A	N/A	27%	15%
30,000–50,000	N/A	N/A	N/A	N/A	25%	15%
50,000–60,000	N/A	N/A	N/A	N/A	20%	10%
> 60,000	N/A	N/A	N/A	N/A	19%	10%
Corridor Wide	**7.4%**	**7.1%**	**7.1%**	**8.2%**	**45%**	**35%**

Source: Cambridge Systematics, Inc., 2015.

4.3.3 GEH Statistic

The results of the GEH analysis is presented below. The GEH statistic or formula, which gets its name from Geoffrey E. Havers, allows for identification of statistically significant deviations from observed flows consistent with the Federal Highway Administration (FHWA) standards and is described in Appendix E. This

statistic is well suited for assessing hourly volumes as traffic on a link can vary from a few dozen to several thousand, the percentage error is not always a good indicator if the traffic model as a whole is representing the observed traffic counts. Since it is more important to accurately match the measure of the high-volume facilities, the GEH statistic incorporates the scale of the observed count into the calculations. The formulation of GEH to compare an observed and modeled traffic volume is as follows. Generally, a GEH of less than 5 indicates a good comparison, while a GEH above 10 can be considered suspect. If 85 percent or more of the links satisfy the target then the model is considered to have achieved an acceptable validation threshold. Table 4.5 lists the percentage of links in the subarea that meet the GEH<=5 threshold for each modeled hour. All of the hourly subarea models produce traffic volumes that satisfy the criteria.

Table 4.5 Base-Year Subarea Validation
GEH Statistic

Time Period	Links GEH <= 5
6:00 a.m. to 7:00 a.m.	92.3%
7:00 a.m. to 8:00 a.m.	91.0%
8:00 a.m. to 9:00 a.m.	90.4%
9:00 a.m. to 10:00 a.m.	90.3%
3:00 p.m. to 4:00 p.m.	89.8%
4:00 p.m. to 5:00 p.m.	90.4%
5:00 p.m. to 6:00 p.m.	89.3%
6:00 p.m. to 7:00 p.m.	88.4%

Source: Cambridge Systematics, 2015.

4.3.4 Screenlines

Due to the linear nature of the study corridor, screenline analysis was not warranted as there are no parallel routes.

4.3.5 Trip Lengths and Trip Length Frequencies

Another set of measures were developed to monitor the effects of the ODME process itself, as the process can sometimes have unintended consequences such as “over fitting,” that affect the accuracy of the outcomes. More specifically, the ODME process can have a tendency to increase the amount of shorter trips within the matrix in order to satisfy the target counts. For this reason, average trip lengths and trip length frequencies (TLF) were monitored before and after the estimation process. There are no industry established standards for these measures. Experience has shown that reasonable targets are:

- Maintain average trip lengths within 15 percent of the original seed matrix trip length.
- Maintain a coincidence ratio of at least 85 percent between the seed matrix TLF and the adjusted matrix TLF.

Table 4.6 shows the trip length statistics comparing the seed trip tables from SERPM 7.0 to the trip tables after the matrix calibration process (ODME). All of the calibrated trip tables have average trip lengths within

10 percent of the seed trips indicating that the trip lengths have not been changed significantly from the SERPM 7.0 model. In terms of trip length frequency, the coincidence ratio for all of the hours except the 3:00 p.m. to 4:00 p.m., which is at 84.8 percent, are above 85 percent. Again, these results indicate that the calibrated trip tables have not been changed significantly from the original seed trips from the SERPM 7.0 regional model. Appendix F provides graphical representations of the coincidence ratio analysis results.

Table 4.6 Base-Year Subarea Validation

Comparison of Hourly Average Trip Lengths and Trip Length Frequencies

Hour	Seed	Calibrated	Difference	% Difference	Coincidence Ratio
6:00 a.m. to 7:00 a.m.	4.86	4.83	-0.03	-0.03%	86.0%
7:00 a.m. to 8:00 a.m.	4.47	4.32	-0.15	-3.4%	85.2%
8:00 a.m. to 9:00 a.m.	4.58	4.35	-0.23	-5.0%	86.3%
9:00 a.m. to 10:00 a.m.	4.70	4.52	-0.18	-3.8%	86.4%
3:00 p.m. to 4:00 p.m.	4.76	4.40	-0.36	-7.6%	84.8%
4:00 p.m. to 5:00 p.m.	4.55	4.16	-0.39	-8.6%	85.8%
5:00 p.m. to 6:00 p.m.	4.45	4.13	-0.32	-7.2%	85.6%
6:00 p.m. to 7:00 p.m.	4.66	4.24	-0.42	-9.0%	85.2%

Source: Cambridge Systematics, 2015.

5.0 Future-Year Traffic

The No Build Alternative evaluates maintaining the existing roadway configuration into the future without corridor improvements other than those that are already under construction or funded improvements that are expected to be open to traffic by the analysis year (see Section 2.0). The traffic conditions with this alternative includes the continuation of the existing congested traffic conditions.

To capture the growth, as well as the potential changes in travel patterns estimated by the regional travel model, an incremental approach to the future forecasts of corridor level traffic was utilized. This process was presented in the forecasting methodology report referenced earlier and is summarized here.

1. Perform standard SERPM 7.0 model forecast to produce estimates of traffic demands for the future year. The changes to the model inputs associated with the future year scenarios were incorporated into the regional model dataset and the regional model was used to forecast future-year traffic demands in a manner consistent with the base year for each scenario.

2. Extract future-year subarea O-D demands for the I-95 study area corridor. Hourly subarea trip tables were extracted for the future consistent with the procedures used for the base year.

3. Calculate the incremental growth for every O-D pair for each vehicle class within the corridor matrix and add to the base-year calibrated trips. This approach ensures that the growth and distribution changes estimated by the future-year planning model (SERPM 7.0) are accounted for. The following formula summarizes the approach.

$$\textit{Adjusted Future Year Demand} = (\textit{SERPM Future Year Demand}—\textit{SERPM Base Year Demand}) + \textit{Calibrated Base Year Demand}$$

The main output from this process is future-year hourly subarea trip tables that will be used as input into the microsimulation models to assess the future-year traffic operations within the corridor. To produce a graphical representation of the future-year travel demands, the subarea trips were assigned using the static subarea assignment model to produce future hourly forecasts of demand within the corridor.

5.1 Future Travel Demand

For this report, only the Peak-Hour Design (PHD) volumes are reported for design purposes, as indicated in the DTTM guidelines. These volumes are representative of the highest hourly demand and are produced using a static assignment procedure consistent with SERPM 7.0, which as explained in the text allow volumes to exceed capacity on individual links. Appendices A, B, C, D, and E show the PHD volumes in graphical form.

5.1.1 Base- and Future-Year No Build

Travel demands for the base-year and future-year No Build were developed for all 8 hours of the 4 hour a.m. and 4 hour p.m. peak periods for the purposes of analyzing the operations of the corridor using the Vissim models. In addition, a comparison of corridor level measures was prepared to provide a better understanding of the change in travel demand between the base Year 2015 and the Year 2045 No Build. Table 5.1 and Table 5.2 compare hourly measures of travel estimated for the corridor. Figures 5.1 and 5.2 provide graphical representations of these measures.

Table 5.1 Estimated Corridor Level Travel—AM Period
Hourly VMT and VHT

Measure	AM (6 to 7)	AM (7 to 8)	AM (8 to 9)	AM (9 to 10)	AM Period
VMT					
2015 Base	260,836	349,006	365,683	332,952	1,308,478
2025 NB	313,272	408,426	405,511	376,706	1,503,915
% Change (2015 to 2025)	**20.1%**	**17.0%**	**10.9%**	**13.1%**	**14.9%**
2045 No Build	352,689	452,250	438,541	416,496	1,660,157
% Change (2015 to 2045)	**35.2%**	**29.6%**	**19.9%**	**25.1%**	**26.9%**
VHT					
2015 Base	5,190	7,777	8,302	7,271	28,539
2025 NB	6,275	9,255	9,103	8,287	32,920
% Change (2015 to 2025)	**20.9%**	**19.0%**	**9.6%**	**14.0%**	**15.4%**
2045 No Build	7,226	11,060	10,415	9,660	38,361
% Change (2015 to 2045)	**39.2%**	**42.2%**	**25.5%**	**32.9%**	**34.4%**

Source: Cambridge Systematics, Inc., 2019.

In the AM period, overall growth in VMT is estimated to be about 27 percent by year 2045. The highest percent growth is estimated to occur in the earlier part of the AM period. The 6:00 to 7:00 a.m. hour is estimated to increase by about 35 percent and the 7:00 to 8:00 a.m. hour is estimated to increase by about 30 percent. This is consistent with the idea that traffic will increase more in time periods that have more available capacity, otherwise known as peak spreading. For the base year, the peak hour based on VMT is from 8:00 a.m. to 9:00 a.m. (shaded cells). In the future years, the peak hour is estimated to occur earlier, from 7:00 a.m. to 8:00 a.m.

Table 5.2 Estimated Corridor Level Travel—PM Period
Hourly VMT and VHT

Measure	PM (3 to 4)	PM (4 to 5)	PM (5 to 6)	PM (6 to 7)	AM Period
VMT					
2015 Base	351,806	328,046	343,313	335,006	1,358,170
2025 No Build	395,786	378,697	402,488	382,777	1,559,748
% Change (2015 to 2025)	**12.5%**	**15.4%**	**17.2%**	**14.3%**	**14.8%**
2045 No Build	427,300	414,881	445,380	417,898	1,705,459
% Change (2015 to 2045)	**21.5%**	**26.5%**	**29.7%**	**24.7%**	**25.6%**
VHT					
2015 Base	8,264	7,205	7,547	7,176	30,192
2025 No Build	9,026	8,303	8,951	8,195	34,475
% Change (2015 to 2025)	**9.2%**	**15.2%**	**18.6%**	**14.2%**	**14.2%**
2045 No Build	10,150	9,581	10,722	9,427	39,880
% Change (2015 to 2045)	**22.8%**	**33.0%**	**42.1%**	**31.4%**	**32.1%**

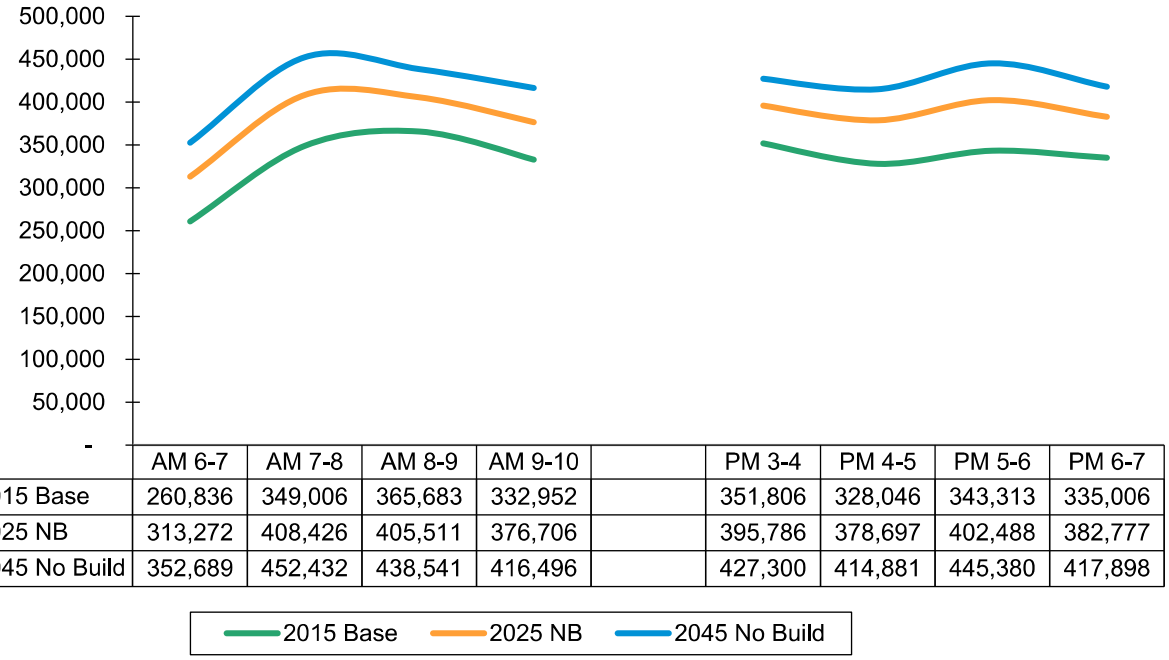
Source: Cambridge Systematics, Inc., 2019.

VHT, which measures the total estimated travel time for all vehicles, is estimated to increase for the AM period by about 34 percent. The higher increase in VHT (34 percent) relative to VMT (27 percent) is related to increased congestion within the corridor.

In the PM period, the overall estimated growth in VMT is 25.6 percent and in VHT is 32.1 percent by Year 2045. Again, the higher increase in VHT relative to VMT is related to increased congestion within the corridor. The largest estimated change in demand occurs in the peak hour from 5:00 p.m. to 6:00 p.m. where VMT increases by 29.7 percent and VHT increases by 42.1 percent. The PM period has a much "flatter" profile in terms of travel demand and therefore there is not as much peak spreading or shifting of travel demand to other hours.

Figure 5.1 Forecasted Hourly Corridor Vehicle Miles

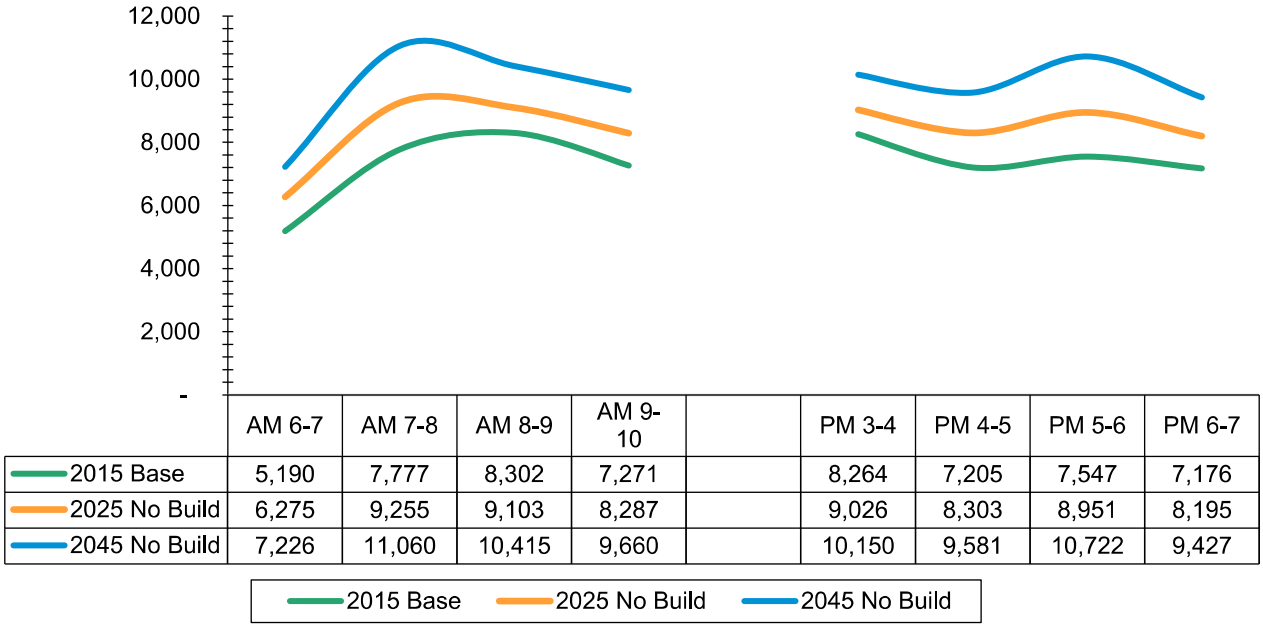
I-95 Subarea



	AM 6-7	AM 7-8	AM 8-9	AM 9-10		PM 3-4	PM 4-5	PM 5-6	PM 6-7
2015 Base	260,836	349,006	365,683	332,952		351,806	328,046	343,313	335,006
2025 NB	313,272	408,426	405,511	376,706		395,786	378,697	402,488	382,777
2045 No Build	352,689	452,432	438,541	416,496		427,300	414,881	445,380	417,898

Figure 5.2 Forecasted Hourly Corridor Vehicle Hours

I-95 Subarea



	AM 6-7	AM 7-8	AM 8-9	AM 9-10		PM 3-4	PM 4-5	PM 5-6	PM 6-7
2015 Base	5,190	7,777	8,302	7,271		8,264	7,205	7,547	7,176
2025 No Build	6,275	9,255	9,103	8,287		9,026	8,303	8,951	8,195
2045 No Build	7,226	11,060	10,415	9,660		10,150	9,581	10,722	9,427

5.1.2 Future-Year Refined Build Concept

PHD volumes were developed for the Year 2045 Future-Year Refined Build Concept scenario. Table 5.3 compares the corridor level travel statistics for the Refined Build Concept and No Build peak-hour traffic forecasts. The table shows that the additional capacity related to the improvements in the Refined Build Concept is estimated to increase travel in the corridor as indicated by increases in VMT of about 21 percent in the AM peak hour and by about 16.5 percent in the PM peak hour. VHT are also estimated to increase in both peak hours; about 39 percent in the AM and about 26 percent in the PM. The increases in travel time are greater than the increases in travel distance which indicates that the average travel speed is slower. Average calculated speeds are estimated to decrease by about 12 percent in the AM peak hour and by about 7.5 percent in the PM peak hour.

Table 5.3 Estimated Corridor Level Travel—Build versus No Build

Hourly VMT and VHT

Measure	VMT	VHT	Average Calculated Speed
AM Peak Hour			
2045 No Build	452,250	11,060	40.9
2045 Refined Build Concept	548,491	15,315	35.8
% Change	21.3%	38.5%	-12.4%
PM Peak Hour			
2045 No Build	445,380	10,722	41.5
2045 Refined Build Concept	519,091	13,507	38.4
% Change	16.5%	26.0%	-7.5%

Source: Cambridge Systematics, Inc., 2019.

5.2 Peak-Hour Intersection Turning Counts (TMC)

Most travel demand models are insensitive to intersection operations and may produce illogical turning movements. However, travel models can provide more accurate estimates of changes in growth by approach/exit than by applying a single growth factor for the whole intersection. The process utilized for this study combines the observed intersection turning movement distributions, the more accurate growth by approach/exit as estimated by the travel model and the calibrated corridor trip distribution. The result of this process is considered a more accurate representation of the future year travel demands at the intersection level than relying solely on the outputs of a travel demand model.

5.2.1 TMC Adjustment Method

Future-year intersection level travel demands were refined based on differences between model estimates and observed data consistent with techniques described in *NCHRP 255: Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8*. The specific procedures used are best described in the NCHRP report as an “iterative procedure” and more specifically as the “Directional Volume Method.” The directional volume method is summarized below in an excerpt from the NCHRP report. A custom computer program was developed to process the future TMCs based on this iterative proportional fitting method.

Directional Volume Method

Starting with user-estimated turning percentages, the directional volume method proceeds through an iterative computational technique to produce a final set of future-year turning volumes. The computations involve alternately balancing the rows (inflows) and the columns (outflows) of a turning movement matrix until an acceptable convergence is obtained. Future-year link volumes are fixed using this method and the turning movements are adjusted to match. This procedure is most applicable in cases where the future-year turning volume "forecasts are not expected to be radically different from either the base-year conditions or from the initial user supplied estimates of turning percentages. If large differences occur, several iterations may be required to reach convergence to the pre-specified future year link volumes.”[1]

Essentially, the process is composed of two main steps:

1. The first step calculates the approach/exit growth increment for each leg of every intersection that has count data. This is done by subtracting the calibrated model link volume from the adjusted future-year model link volume. This growth increment is then added to the observed TMCs to produce future target totals for each approach/exit (marginals).

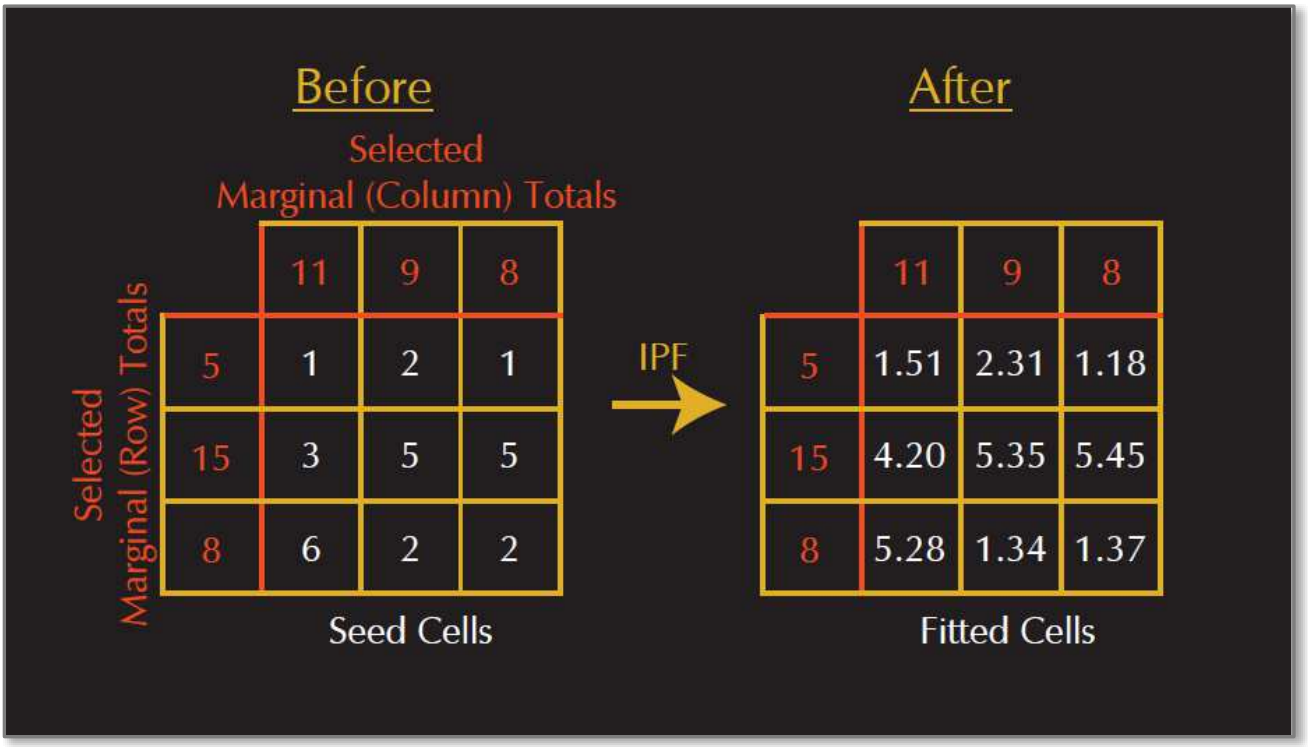
2. The second step uses the base year TMCs as the starting point and applies iterative proportional fitting (ipf) procedures to factor up the observed TMCs to match the future total approach/exit targets.

Iterative proportional fitting is a procedure for adjusting a table of traffic counts in matrix format such that the rows (access) and columns (egress) add up to selected totals for both rows and columns (marginals). The marginals are estimated in step 1 above. Figure 5.3 shows an example of ipf for a 3x3 matrix of traffic counts.

[1] NCHRP 255: Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8.

The future-year 2025 and 2045 No Build link and intersection turning movement forecasts appear on the figures in Appendices C and D.

Figure 5.3 Example of Iterative Proportional Fitting



Appendix A. Memorandum: Base- and Future-Year Models Methodology

1.0 Approach to Travel Demand Forecasting

1.1 Overview

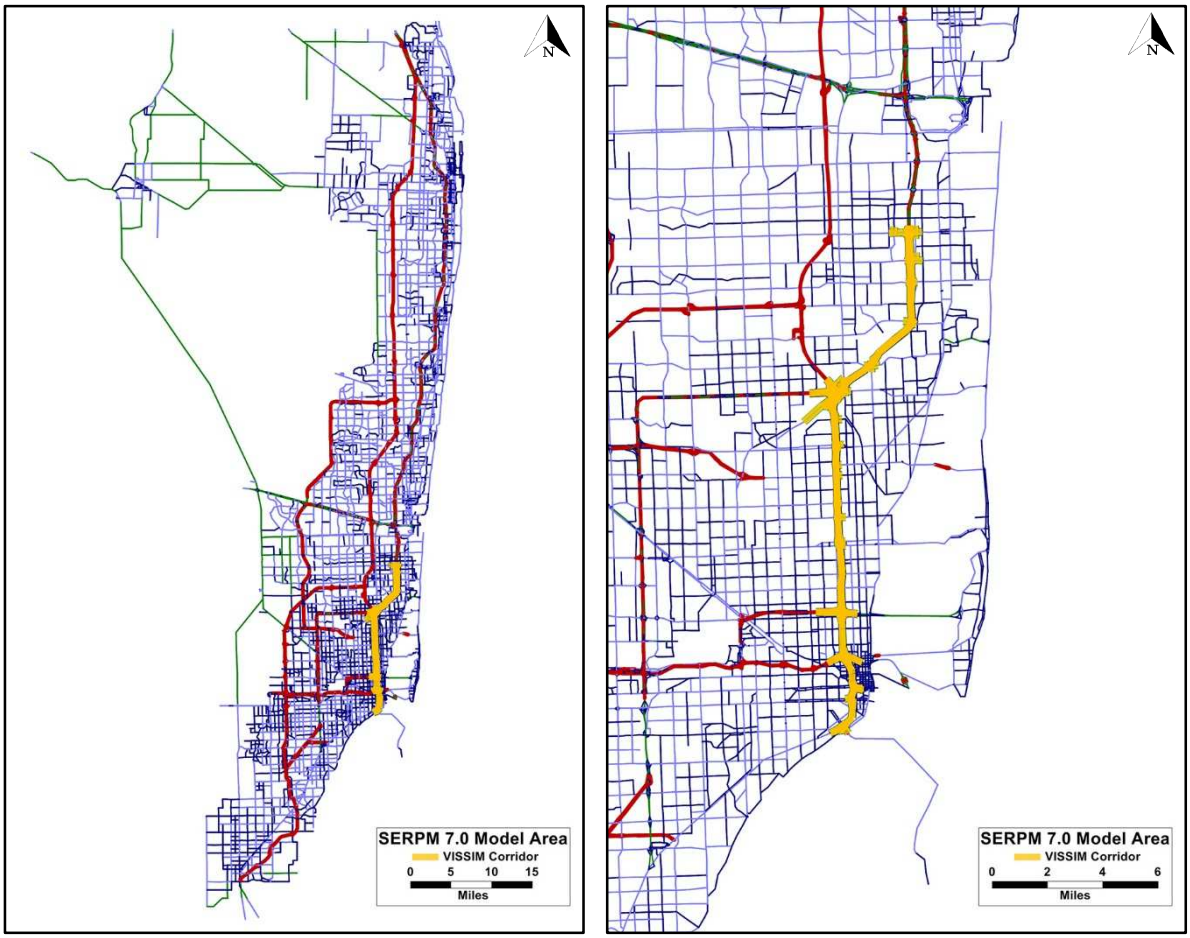
Future traffic projections will be developed and used to prepare improvement concepts for roadway typical sections, interchange, and intersection designs. This memorandum describes the approach and processes that will be used to validate the base year models which will form the basis for the future year modeling of alternatives. It also discusses the approach to the forecasting of future year traffic volumes and demands (OD) that will be used to inform the operational models. This memorandum will be reviewed and approved by FDOT prior to the development of future traffic forecasts.

Average daily traffic, design hour volumes, and AM and PM peak hour turning movement volumes will be developed for the present year and two future year horizons: short term (year 2025) and long term (year 2045). The development of future traffic volumes will be consistent with the policies and procedures outlined in the **FDOT Project Traffic Forecasting Handbook and Project Traffic Forecasting Procedure (#525-030-120)**. Future year forecasts will utilize the Southeast Florida Regional Planning Model (SERPM 7.0). A review of the highway and transit networks for the study area will be conducted to ensure they accurately represent the Miami-Dade MPO's Existing Plus Committed (E+C) transportation network. Future AM and PM peak hour traffic forecasts for intersections will be developed using the **FDOT's TMTool** or a similar analysis tool.

The newly completed advanced travel demand model for the region (SERPM 7.0) will be utilized for the traffic forecasts. SERPM 7.0 is a regional travel demand model that can forecast regional demands that are sensitive to major changes in capacity, both highway and transit, changes in travel costs like tolls and fares, and to changes in policy like HOV eligibility requirements. To support the operational analysis of traffic within the I-95 corridor, a separate subarea model representing the study corridor will be developed from SERPM 7.0 by using standard subarea extraction techniques to produce corridor-level vehicle trip tables. These trip tables will be calibrated to observed conditions and used as input into the microsimulation models to support the more detailed operational analysis. The regional and subarea models will be integrated in such a way so that they can inform one another with regard to demand and constraint dynamics, allowing information to pass freely up or down the analysis chain. Figure 1.1 shows SERPM 7.0 regional model extents and highlights the roadways that will be part of the operational model (Vissim).

The integrated models will be utilized to develop the future travel demand forecasts. The forecasts will include Daily and Design Hour Volumes suitable for planning purposes and the development of peak-period 15-minute trip table inputs for the VISSIM microsimulation modeling.

Figure 1.1 SERPM 7.0 Model Roadways
I-95 Corridor Model Highlighted (Vissim)



2.0 TRAVEL DEMAND MODEL SYSTEM

There are generally two types of transportation models utilized in scenario evaluation – travel demand models and traffic operations models. SERPM 7.0 is the region's multimodal travel demand model that is utilized in various regional and subregional analysis studies. Travel demand models are designed to model travel patterns, which establish themselves over time, and are not appropriate for modeling dynamic situations where short-term events are introduced in the transportation network.

Traffic operations models are specifically developed to assess the traffic operating conditions of transportation systems and in contrast with travel demand models, explicitly account for the capacity constraints in the network (i.e., capacity on a link is never exceeded).

For this study, a three-tiered approach will be taken:

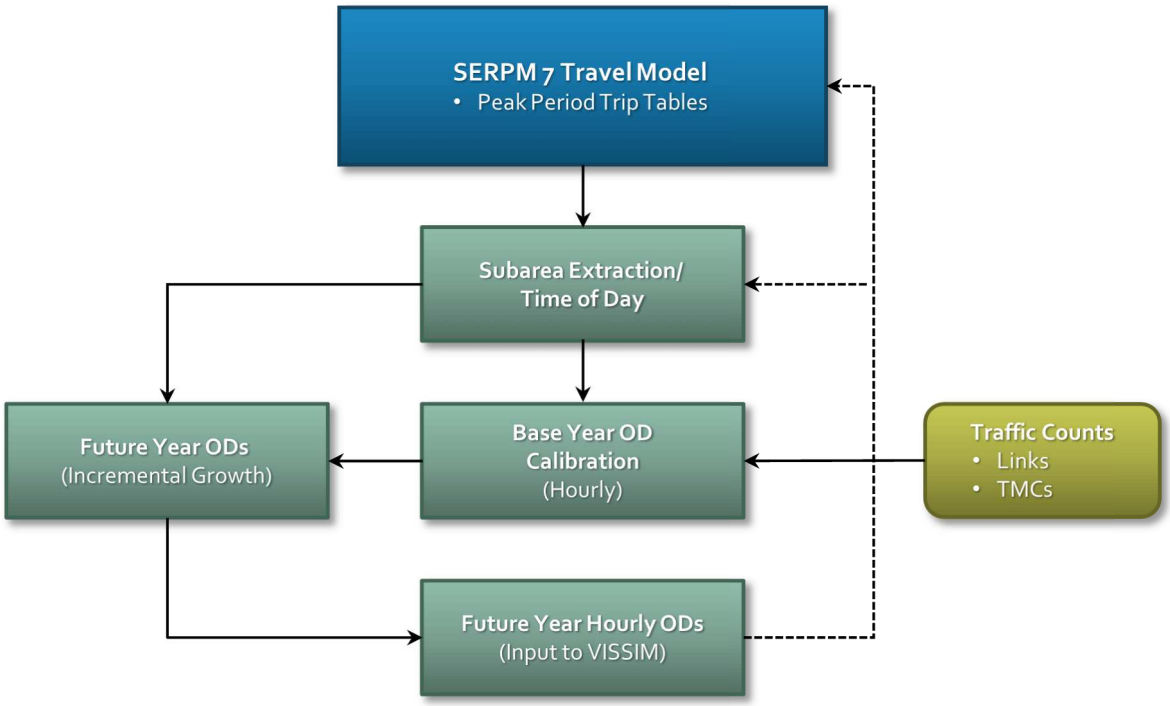
1. **Regional Demands.** The current SERPM 7.0 regional model provides the basis for travel demand for the base and future year within the MPO region, as well as for the I-95 corridor.

2. **Subarea Modeling.** Calibration and Validation of subarea travel demands to inform the operational models and to provide insights regarding any diversion of traffic anticipated as the result of the project.

3. **Corridor-Level Simulation.** Operations analysis of the I-95 corridor using simulation models. The development and calibration of the microsimulation analysis tool using the Vissim software are described in a separate technical memorandum.

Figure 2.1 displays the modeling framework and the relationship among the different levels of analysis.

Figure 2.1 I-95 Master Plan Modeling Framework



3.0 REGIONAL MODEL VALIDATION

A series of validation checks will be performed to ensure that the models provide consistent forecasts for base and future years. Additional model system calibration, validation, and sensitivity testing are recommended for this project considering this is the first major application of the newly developed SERPM 7.0 model, an advanced travel demand model. These additional checks are aimed at assessing the accuracy and reliability of the activity-based model (ABM) to address the stochastic element within an ABM such as SERPM 7.0. This approach will include a set of sensitivity tests that vary model inputs, (i.e., land use, number of lanes, value of time, etc.) with the updated models to ensure that they are behaving correctly and consistently. Special attention will be given to the following:

- The mode choice component of the model in relation to the auto mode and the pricing of roadways as prior Four-Step Model versions of SERPM treated roadway pricing differently.
- Time-of-Day or departure time information from SERPM 7.0 which will be used to further disaggregate the travel demands (OD) or trip tables into half-hour time slices.
- Route choice (pay or no-pay) data on existing HOT lane use will be compared to modeled outputs to assess how well the model replicates the existing facilities.
- Corridor OD pattern (or trip distribution) data (if available) will be compared to modeled outputs to assess the accuracy of the modeled demand within the corridor. OD patterns within the corridor have a significant impact on traffic operations and revenue estimates.

If significant issues are discovered through the validation checks described above, additional model and/or model output adjustments to improve the calibration would be necessary and are not accounted for as part of the current scope of services. These improvements are covered under the Optional Task for SERPM 7.0 Modeling. The following potential model or model output adjustment areas may be required:

- Develop and implement a postmodel process to adjust the vehicle OD patterns of the seed matrices that are used in the ODME process before the assignment step for the base and future years; and
- Develop and implement a postmodel process to adjust the auto mode (pay versus no-pay) shares before the assignment step for base and future years.

4.0 Base Year Subarea-Level Travel Demand Calibration

To replicate existing roadway operating conditions to a high degree of accuracy, the travel demands within the study area and within the corridor specifically will be calibrated to a finer level of detail than that of the regional model (SERPM 7.0) which is used primarily for planning purposes. Calibration of traffic demand will be an iterative process that involves refining the demands in the static equilibrium assignment environment and then testing the operations of these demands within the simulation model.

4.1 Approach

To develop the demand tables which best reflect traffic demand and travel patterns in the study area, a common procedure will be used to adjust the subarea trip tables incrementally from the regional model (also known as the seed tables) to better match observed counts. This procedure is generally known as Origin Destination Matrix Estimation, or ODME, and is a mathematical process that is performed within the existing travel demand model. The iterative process makes slight adjustments to the OD tables and then assigns flows over the travel demand model and compares the forecasts to observed traffic data (link volumes, TMCs, and OD survey data if available). The differences are then examined, further adjustments are made to the OD tables, and the assignment is repeated. The process continues until the error between the estimated traffic and the observed traffic data are minimized. The end result is a trip table that matches the overall patterns assumed in the seed tables but better matches the observed traffic counts. The key inputs to the ODME process are the regional model (which is used for assignment and for the seed trip tables) and observed traffic count data and OD information if available.

4.1.1 Calibration Data (Observed Traffic)

- Traffic Counts:
  - 24-Hour Link Volumes; and
  - TMCs: 2 hours in the AM and PM periods.
- OD Patterns (if available) – e.g., Transaction Data.

4.1.2 Time Periods

- AM Period: 6 a.m.to 9 a.m.
- PM Period: 3 p.m. to 7 p.m.

4.2 Calibration Criteria

For this study, FDOT standard measures of travel demand assignment validation will be used to compare the assigned volumes to observed traffic counts. These measures include screenline analysis, the percent deviation between the counts and assigned volumes, and the percent Root Mean Square Error (%RMSE) of these deviations. These measures serve as a tool to refine the distribution and magnitude of demands within the study area; however, the ODs will be considered validated when they produce traffic conditions within the microsimulation models that closely match the observed conditions.

4.2.1 Functional Class

Table 4.1 shows the proposed FDOT Volume-over-Count percentage differences by Functional Class as documented in FDOT's Project Traffic Forecasting Handbook.

Table 4.1 Base Year Subarea Assignment Validation Criteria
Functional Class

Functional Class	Percent Deviation Target
Freeway	±7%
Divided Arterial	±15%
Undivided Arterial	±15%
Collector	±25%
One-Way/Frontage Road	±25%

Source: FDOT.

4.2.2 Volume Groups

Table 4.2 shows the proposed FDOT Volume/Count Percent RMSE by Volume Group as documented in FDOT's Project Traffic Forecasting Handbook.

Table 4.2 Base Year Subarea Assignment Validation Criteria
Volume Group

Volume Group (Count)	Percent Deviation Target
0-5,000	±100%
5,000-10,000	±45%
10,000-15,000	±35%
15,000-20,000	±30%
20,000-30,000	±27%
30,000-50,000	±25%

Volume Group (Count)	Percent Deviation Target
50,000-60,000	±20%
>60,000	±19%
All Links	45%

Source: FDOT.

4.2.3 Screenline

Table 4.3 shows the proposed FDOT Volume-over-Count Percent Difference by screenline volume as documented in FDOT's Project Traffic Forecasting Handbook.

Table 4.3 Base Year Subarea Assignment Validation Criteria
Screenline

Screenline Volume (Count)	Percent Deviation Target
0-35,000	±20%
35,000-70,000	±15%
>70,000	±10%

Source: FDOT.

4.2.4 GEH Statistic

An additional measure commonly known as GEH that allows for identification of statistically significant deviations from observed flows consistent with FHWA standards is proposed. This measures is useful during calibration because it provides a measure that is scaled in relation to the magnitude of the traffic count because flows on individual links are much smaller than the usual ADT comparisons that are made for regional models. GEH values are a statistical measure commonly used in traffic simulation to indicate the difference between observed and modeled volumes. As traffic volumes on a link can vary from a few dozen to several thousand, the percentage error is not always a good indicator if the traffic model as a whole is representing the observed traffic counts. Since it is more important to accurately match the measure of the high-volume facilities, the GEH statistic incorporates the scale of the observed count into the calculations. The formulation of GEH to compare an observed and modeled traffic volume is as follows. Generally, a GEH of less than 5 indicates a good comparison, while a GEH above 10 can be considered suspect. The formula for GEH appears below. Table 4.4 lists the validation criteria associated with this measure proposed for the calibration of the demands for the corridor.

$$GEH = \sqrt{\frac{2 \times (Modeled - Observed)^2}{(Modeled + Observed)}}$$

Table 4.4 Summary of Subarea Model Validation Criteria

Validation Criteria and Measures	Validation Acceptance Targets
GEH	GEH <5, for 85% of cases
Sum of Link Flows	Within 10 percent
Volumes at critical links (Flow >2,700)	Within 15%, for 85% of cases
Screenline Volumes (Maximum 10 Screenlines)	Within 15 percent (for peak and simulation periods)

5.0 Future Year Travel Demands

To examine regional demand the forecasts from SERPM 7.0 for the future years will be used to support regional analysis of travel demands at the planning level. The procedure utilized will be consistent with those outlined in the **Project Traffic Handbook and Project Traffic Forecasting Procedure (#525-030-120)**.

5.1 Approach

To maintain a direct link among the macroscopic (SERPM 7.0) and microscopic (Vissim) models, the following approach will be used to estimate future year demands (OD) for the study corridor. All of the changes to the model inputs associated with the future year scenarios will be incorporated into the regional model dataset and the regional model will be used to forecast future year traffic flows in a manner consistent with the base year for each scenario. Incremental growth for every OD pair will be added to the base year calibrated trips. The process is summarized below:

1. Perform standard SERPM 7.0 model forecast to produce estimates of traffic demands.
2. Extract future year subarea OD demands for the I-95 study area corridor.
3. Adjust future year demands based on the base year validation. The final scenario-specific future year matrices will be calculated using the following formula for each vehicle type/class:

   Adjusted Future Year Matrix = (Raw Future Year Matrix – Raw Base Year Matrix) + Calibrated Base Year Matrix.

5.2 Travel Demand Model Alternatives

SERPM 7.0 will be applied to produce forecasts for the two horizon years to test various pricing, policy, infrastructure improvement, and operational strategies in the I-95 study. There are two main phases to the development of future year forecasts:

1. **Scenario Development Phase.** The scale and scope of the improvement projects have implications on what level of analysis should be undertaken. There are two main categories:

   a. Minor projects that will have little impact on regional demands, (e.g., number of lanes on a ramp) but will still affect the corridor-level traffic. For these types of projects, only the assignment models will be utilized for the forecasts. *(Up to eight assignment-level scenarios will be tested.)*

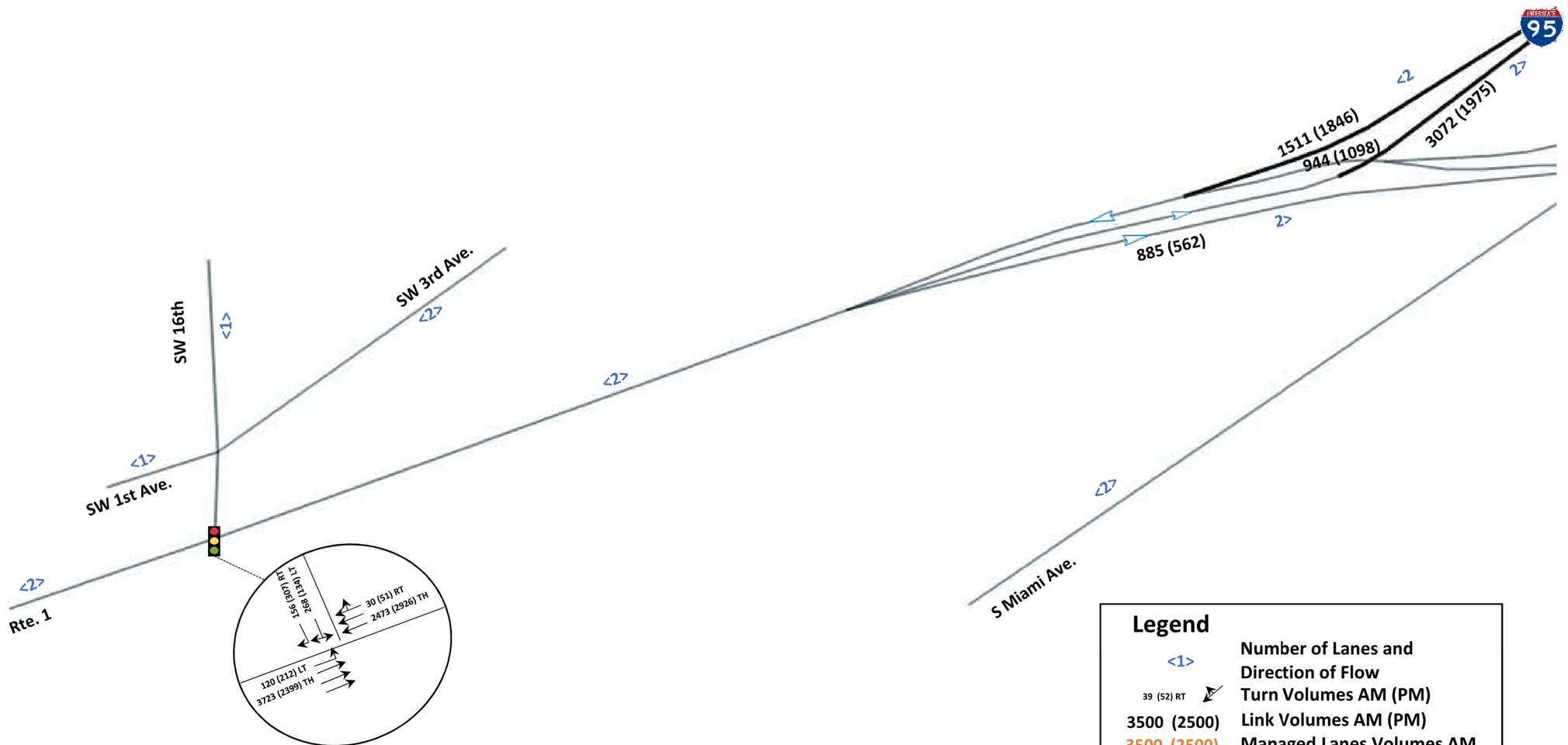
   b. Projects of regional significance. Full model runs are necessary whenever the project or set of projects has regional significance such that any of the behavioral submodels will be affected. For example, Interstate-to-Interstate improvements can have regional impacts on travel behavior in terms of destination, mode, and/or time of travel; all factors that could affect the outcomes of the forecast. For these, the full regional (SERPM 7.0) model will be utilized. *(Up to four regional model-level scenarios will be tested.)*

2. **Final Alternative Modeling Phase.** Based on the results of the scenario development phase, final sets of improvement projects will be bundled together and modeled using the full SERPM 7.0 model. The scope anticipates the development of two final alternatives: a No-Build (or No I-95 Project) alternative and a Full-Build I-95 Project alternative. The outputs from these forecasts will form the basis for the traffic analysis. The processes and techniques that will be utilized are discussed in the next section.

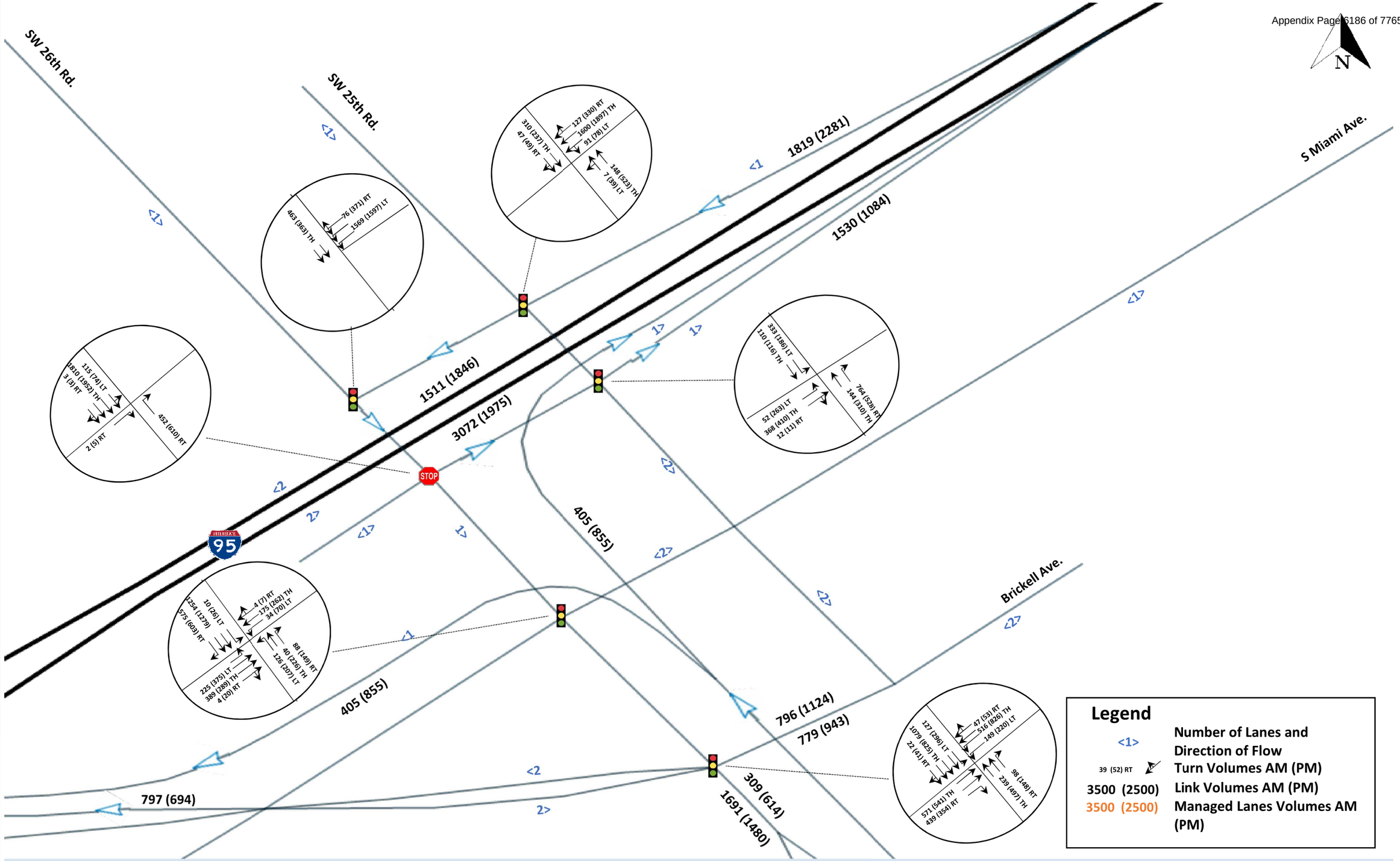
5.3 Future Year Traffic Volumes

Corridor-level calibrated future year trip tables (OD) will be produced for each regional scenario (no-build and build) as inputs into the microsimulation models. For roadways outside of the I-95 corridor-level microsimulation model, roadway traffic forecasts will be summarized for AM and PM peak hours and for daily timeframes at key locations. Future year AM and PM turning movement volumes will be calibrated for the ±77 intersections within the study corridor based on differences between model estimates and observed data using the **FDOT's TMTool** or a similar analysis tool. These procedures will be automated to the extent possible to improve efficiency and to ensure the integrity of the outputs.

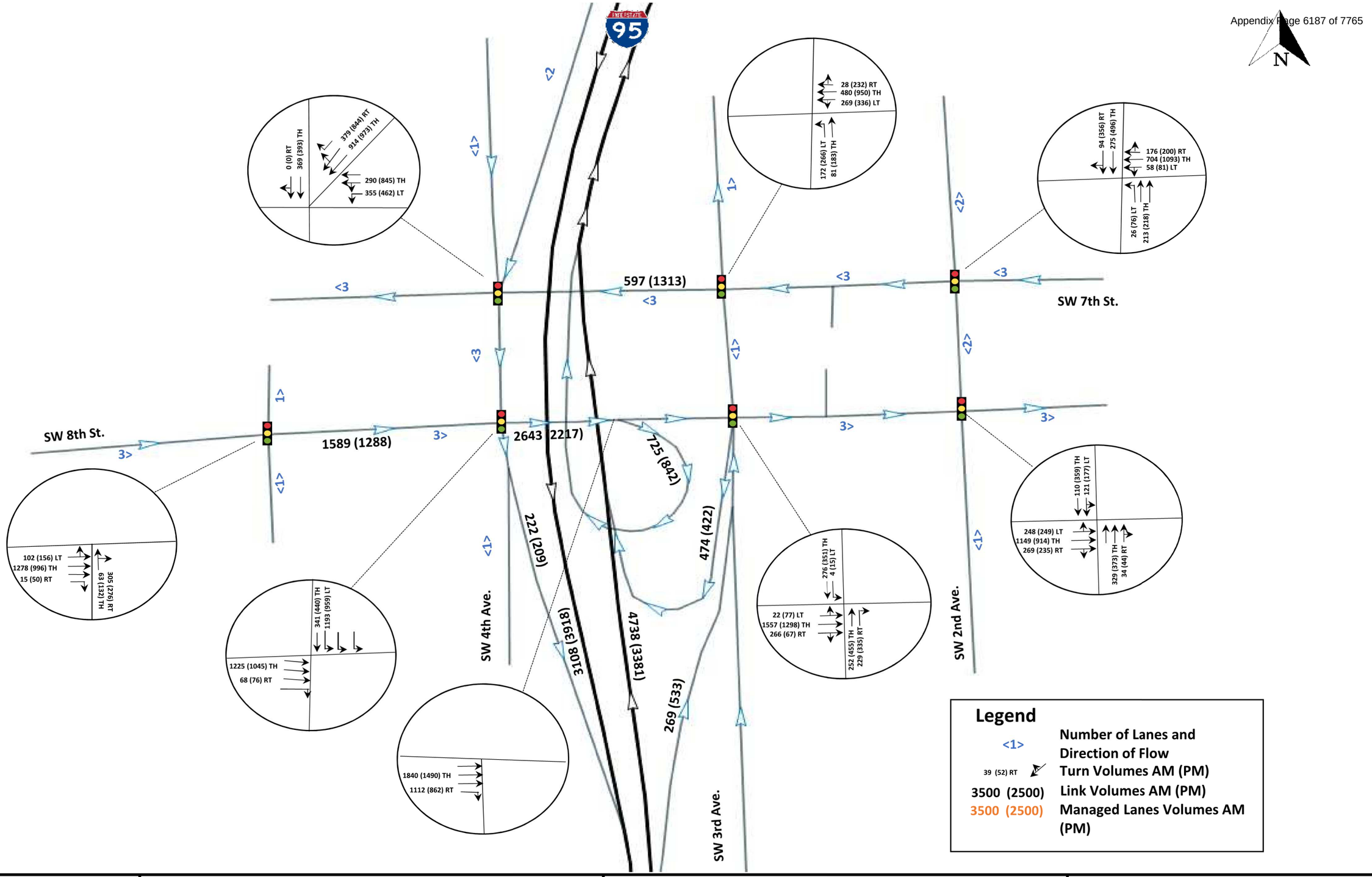
Appendix B. I-95 CPS Base Year (2015)



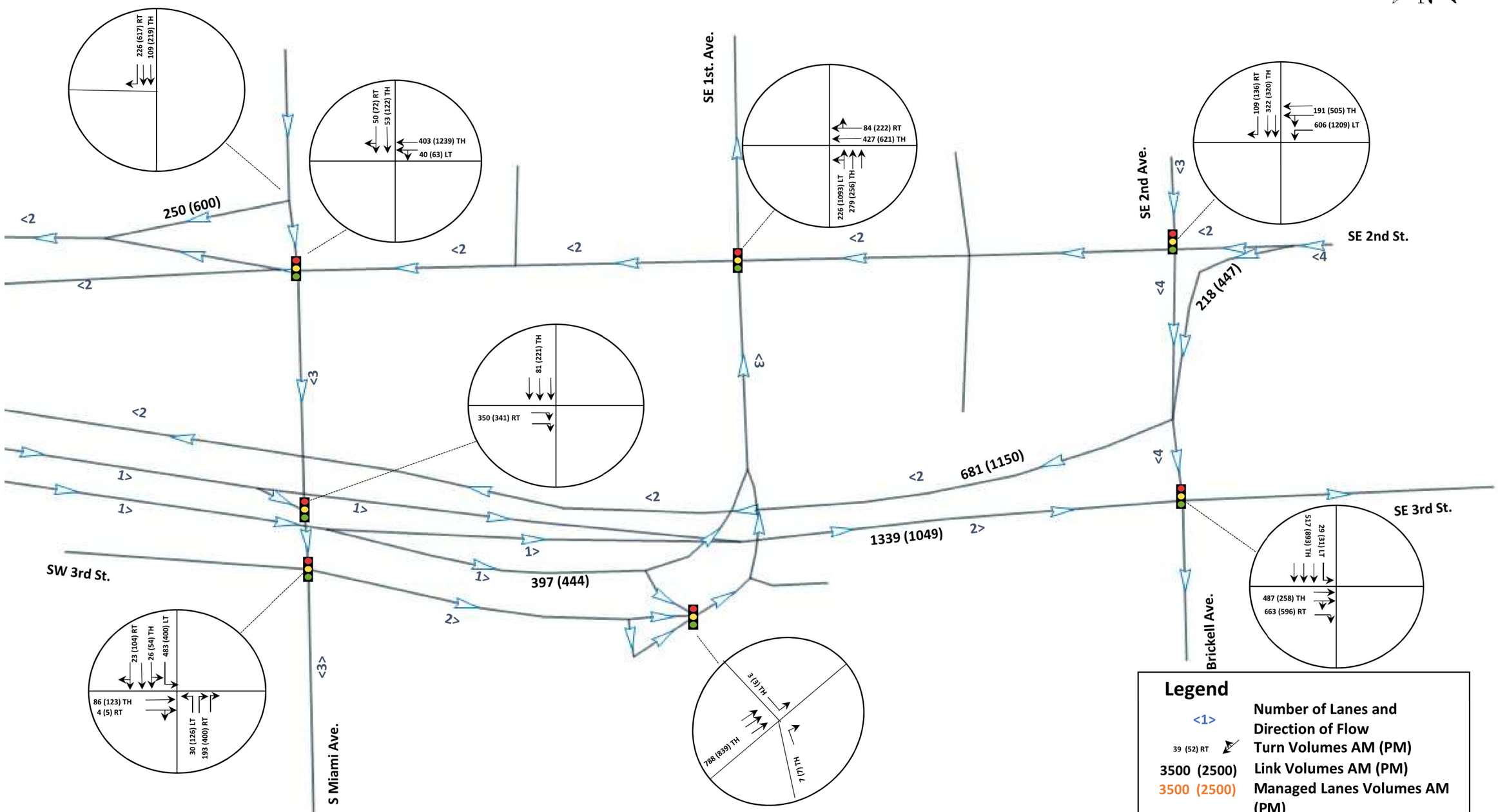
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 1 / 23**



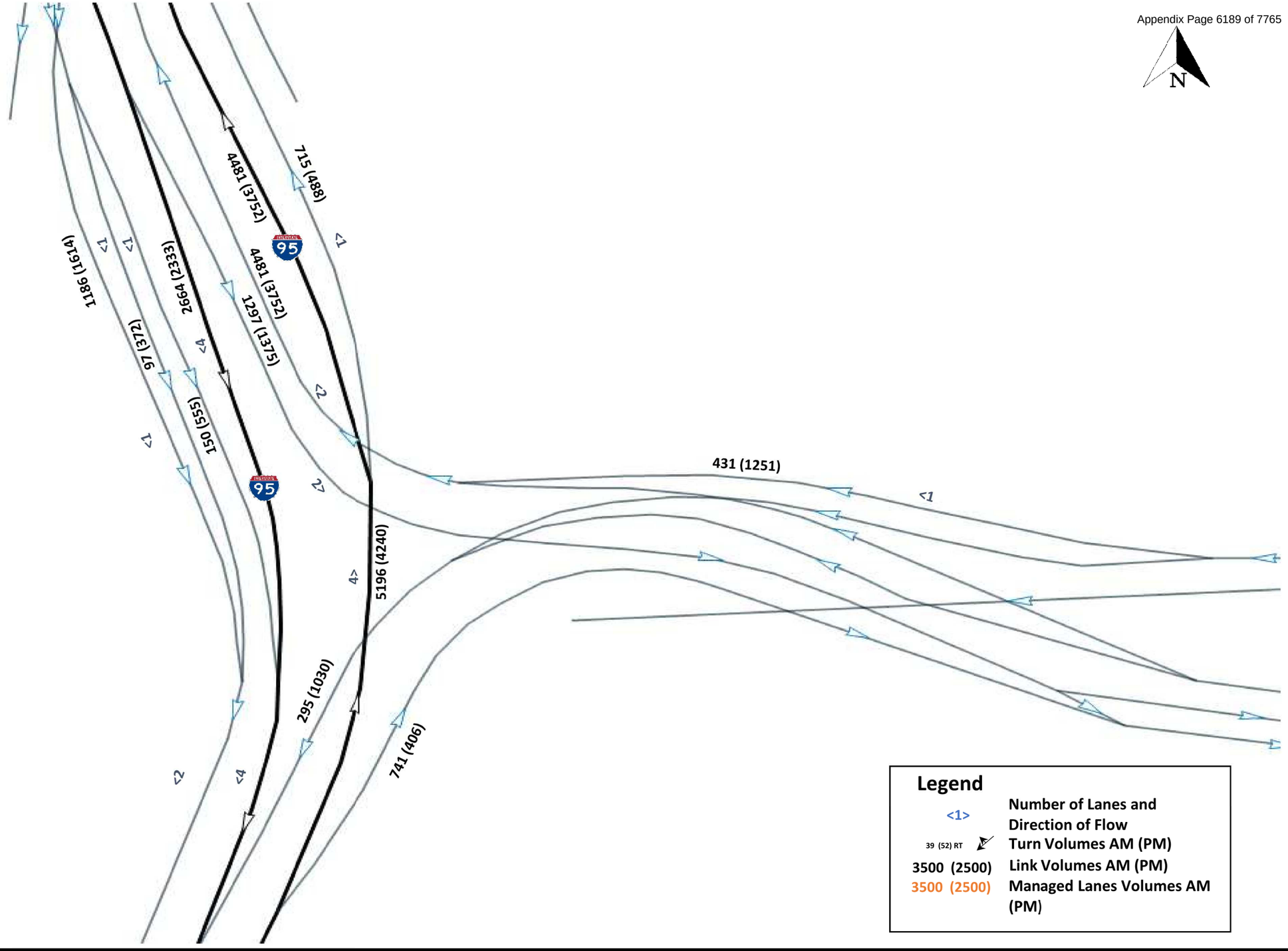
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 2 / 23



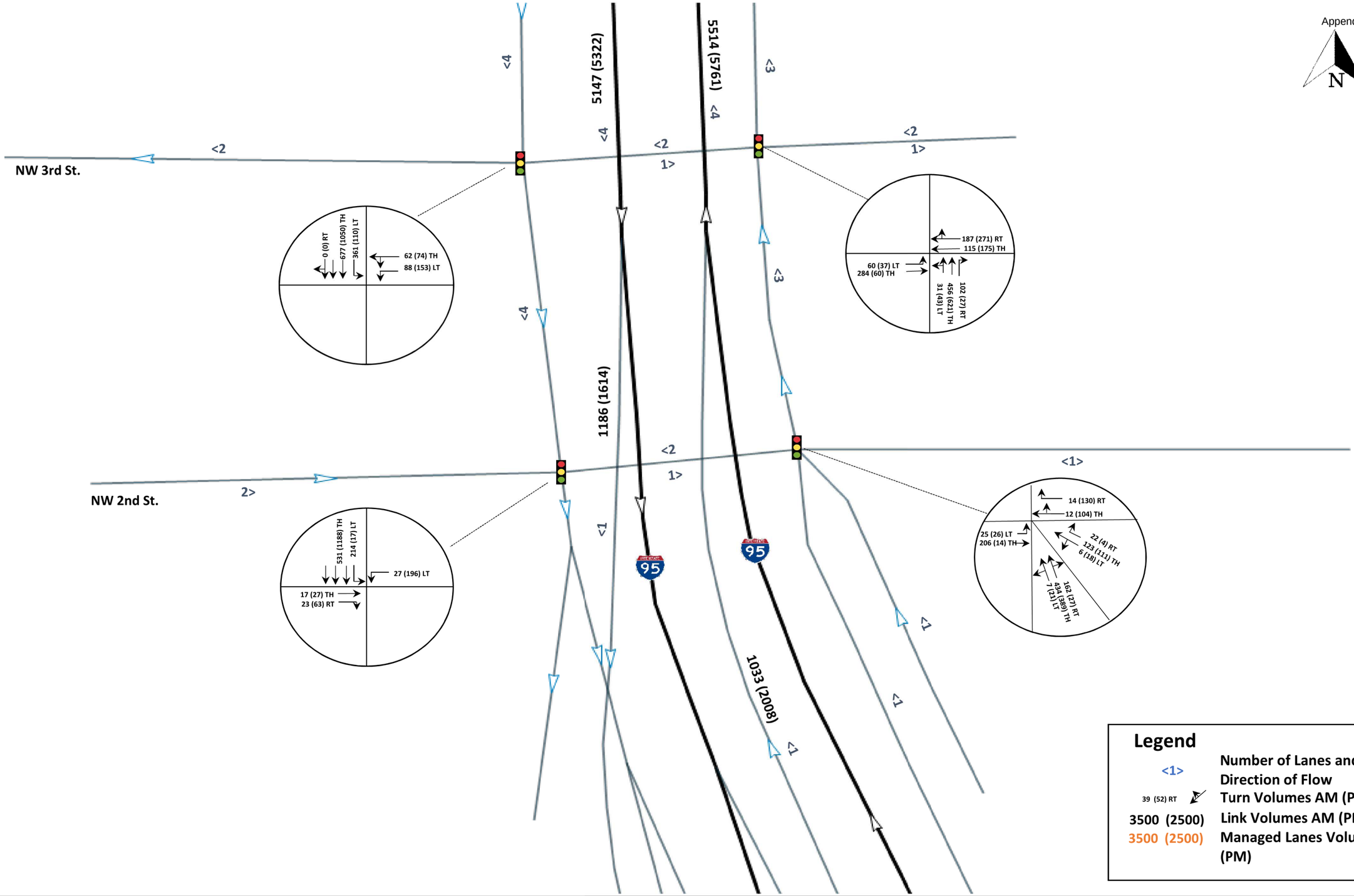
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 3 / 23**



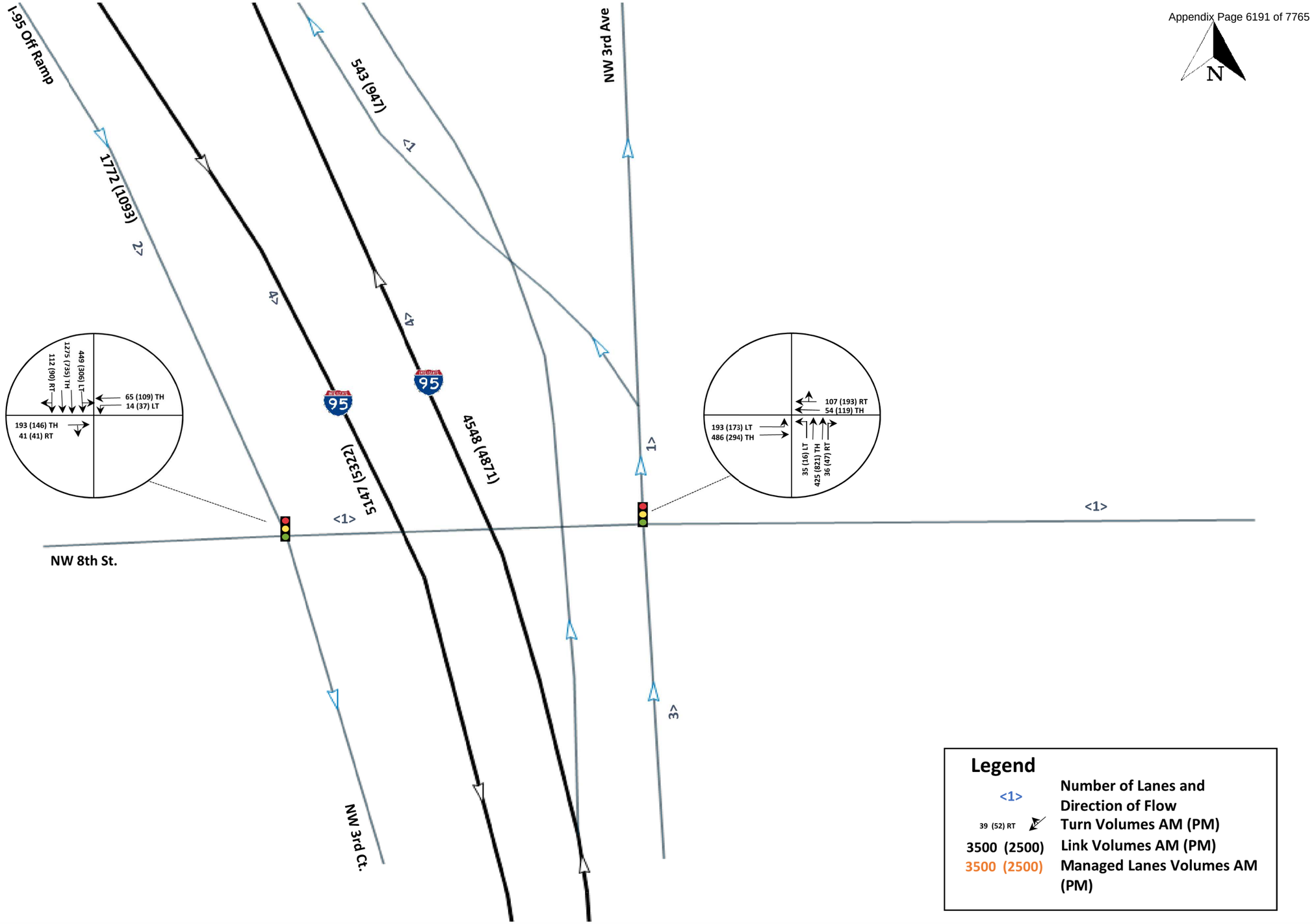
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 4 / 23**



	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 5 / 23**

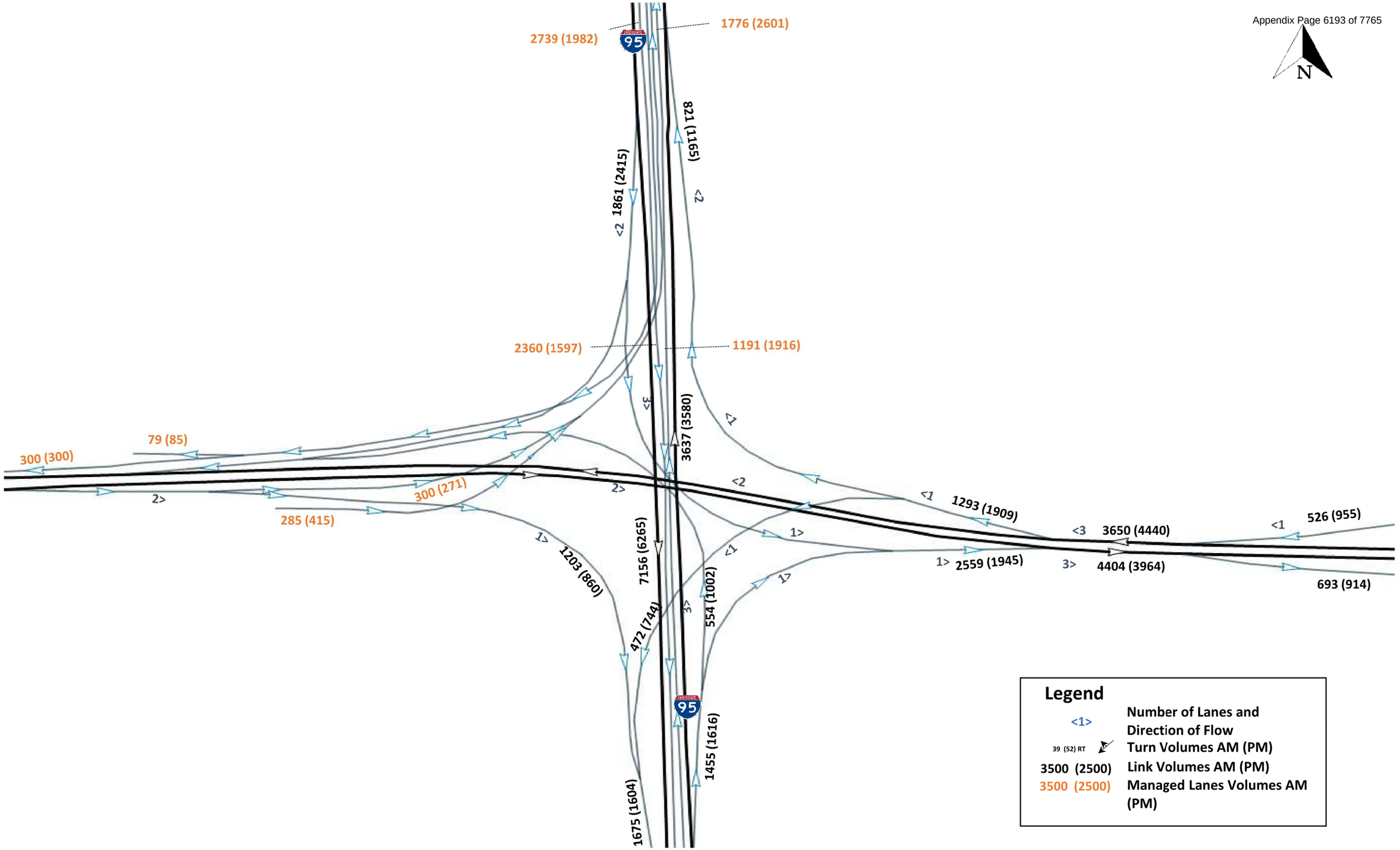


	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 6 / 23**

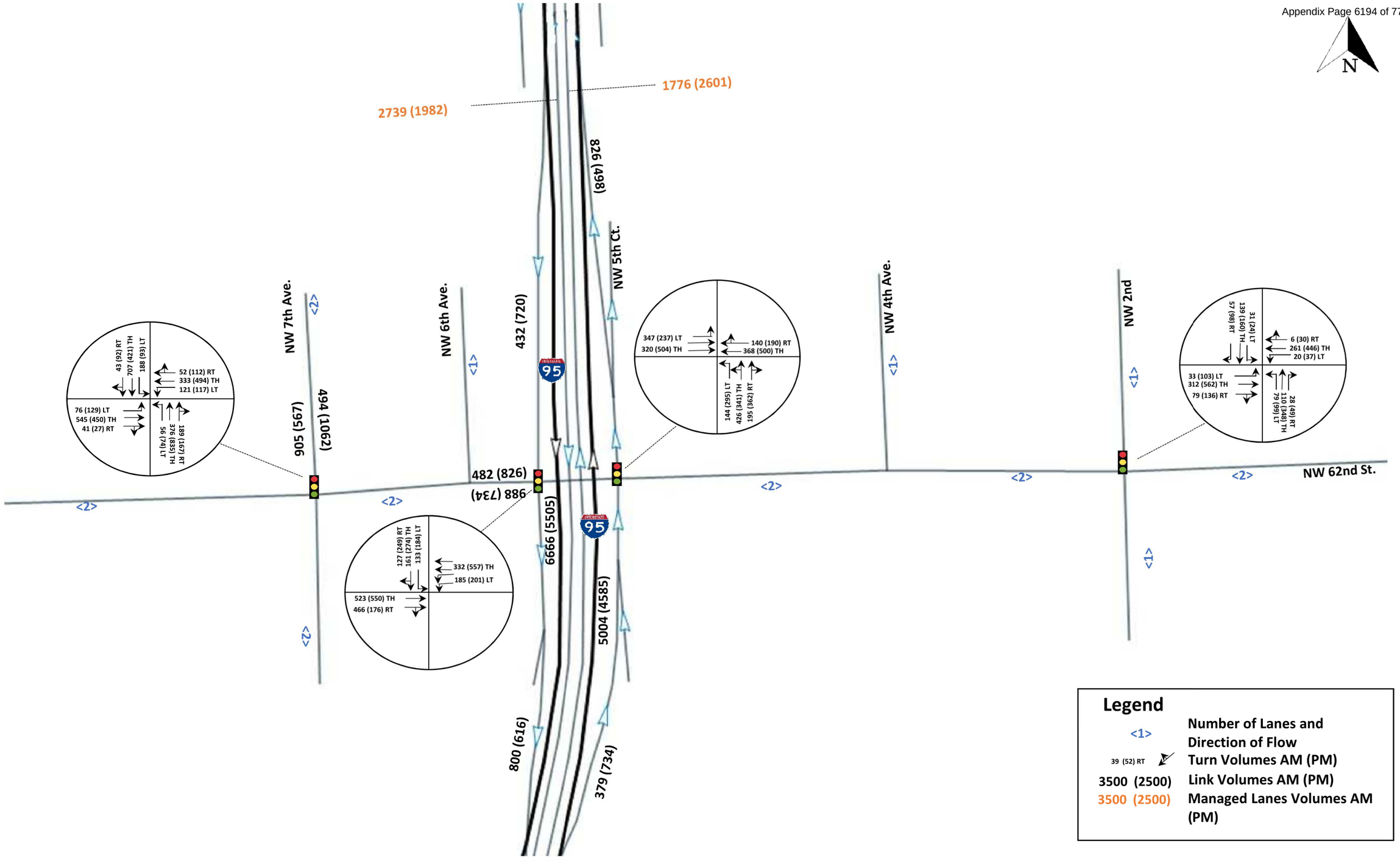


	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 7 / 23**

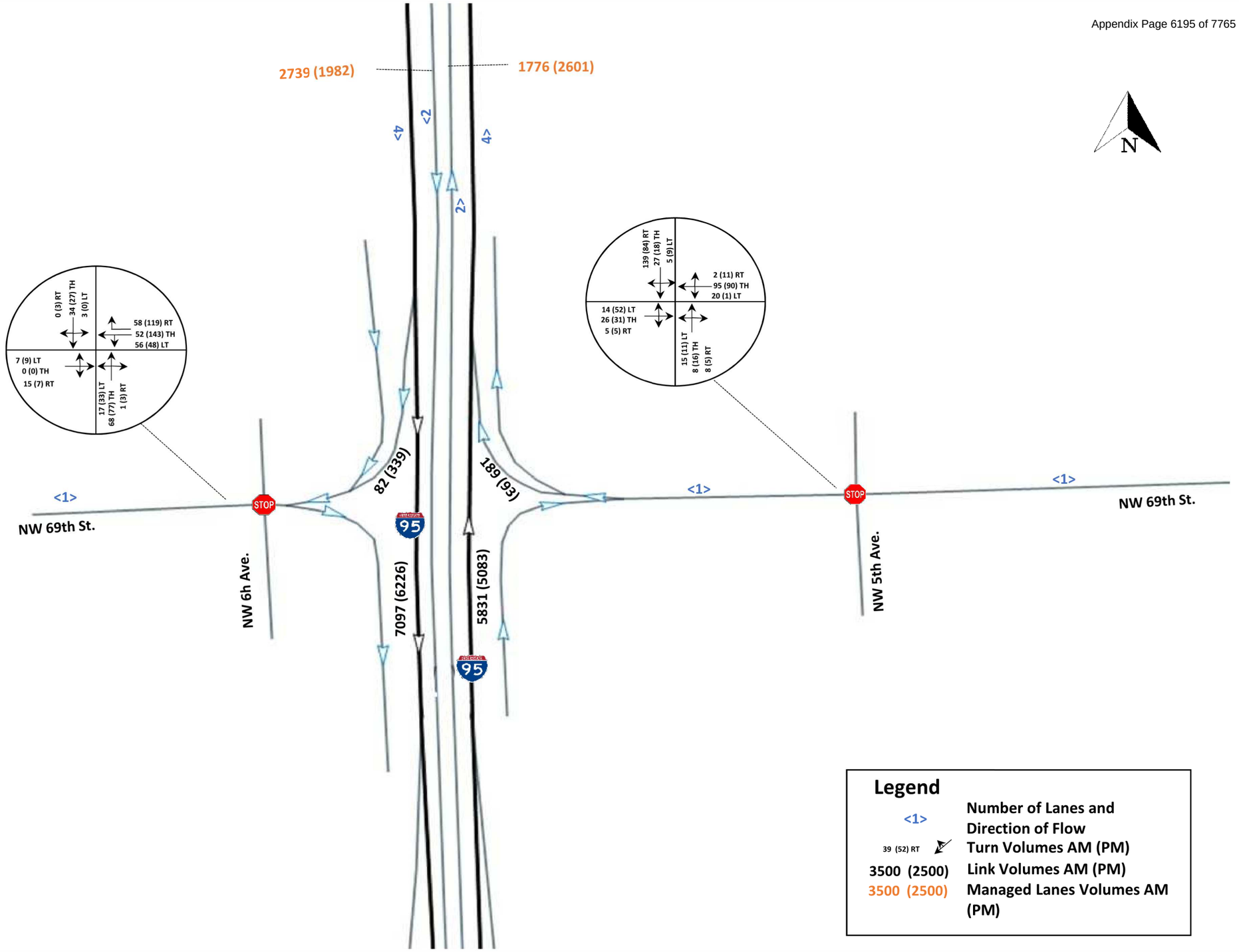
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 8 / 23**



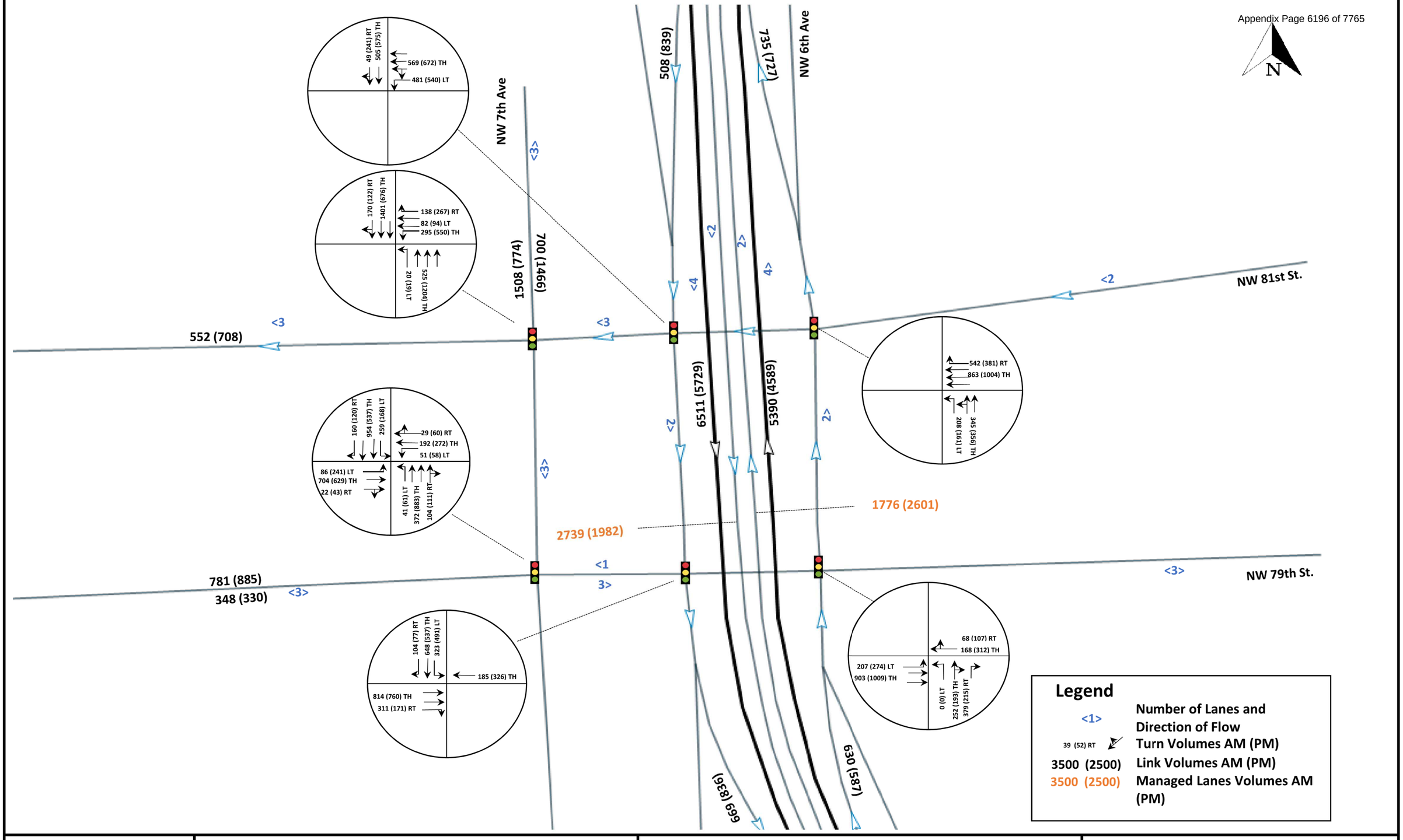
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 9 / 23**



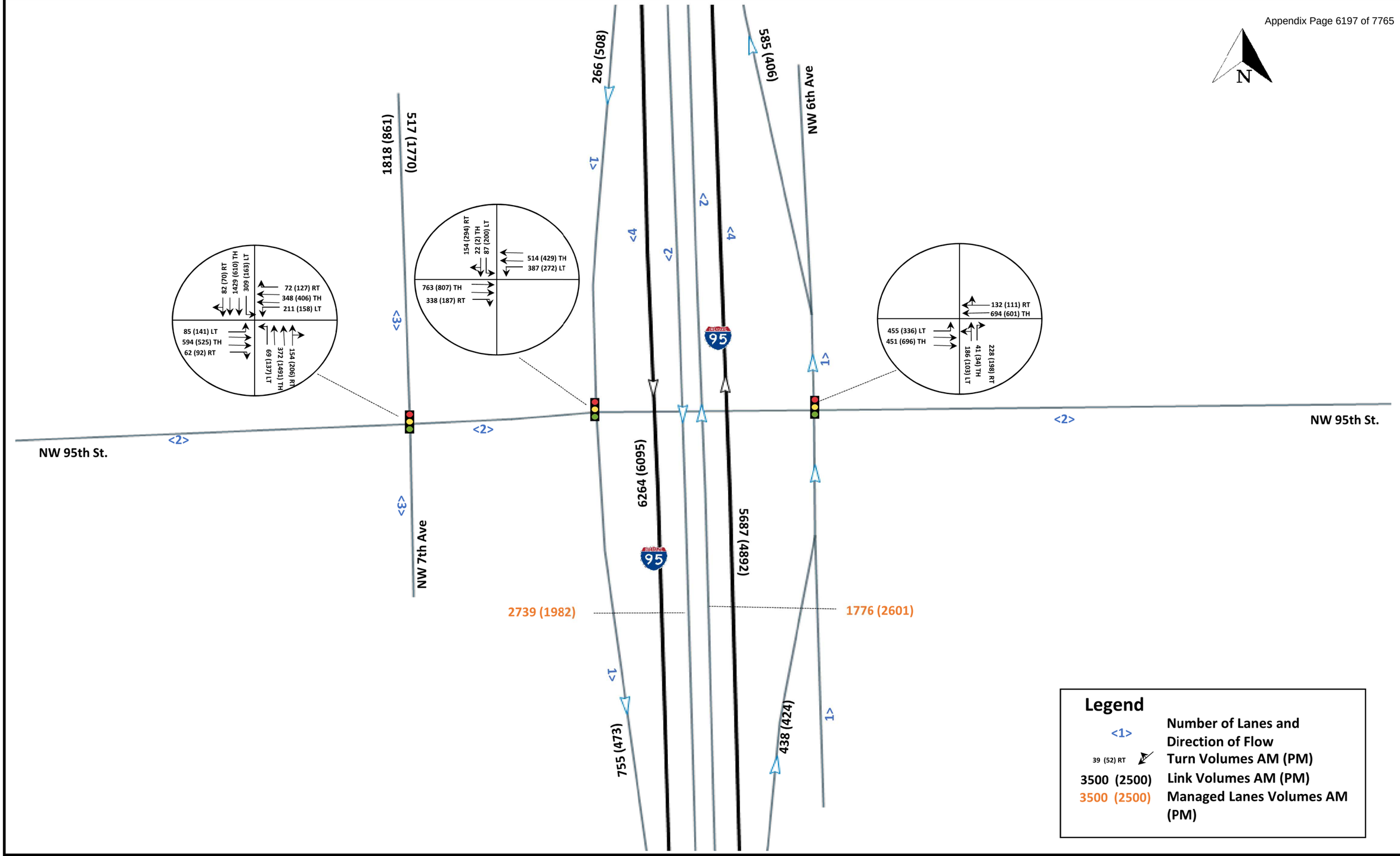
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 10 / 23**



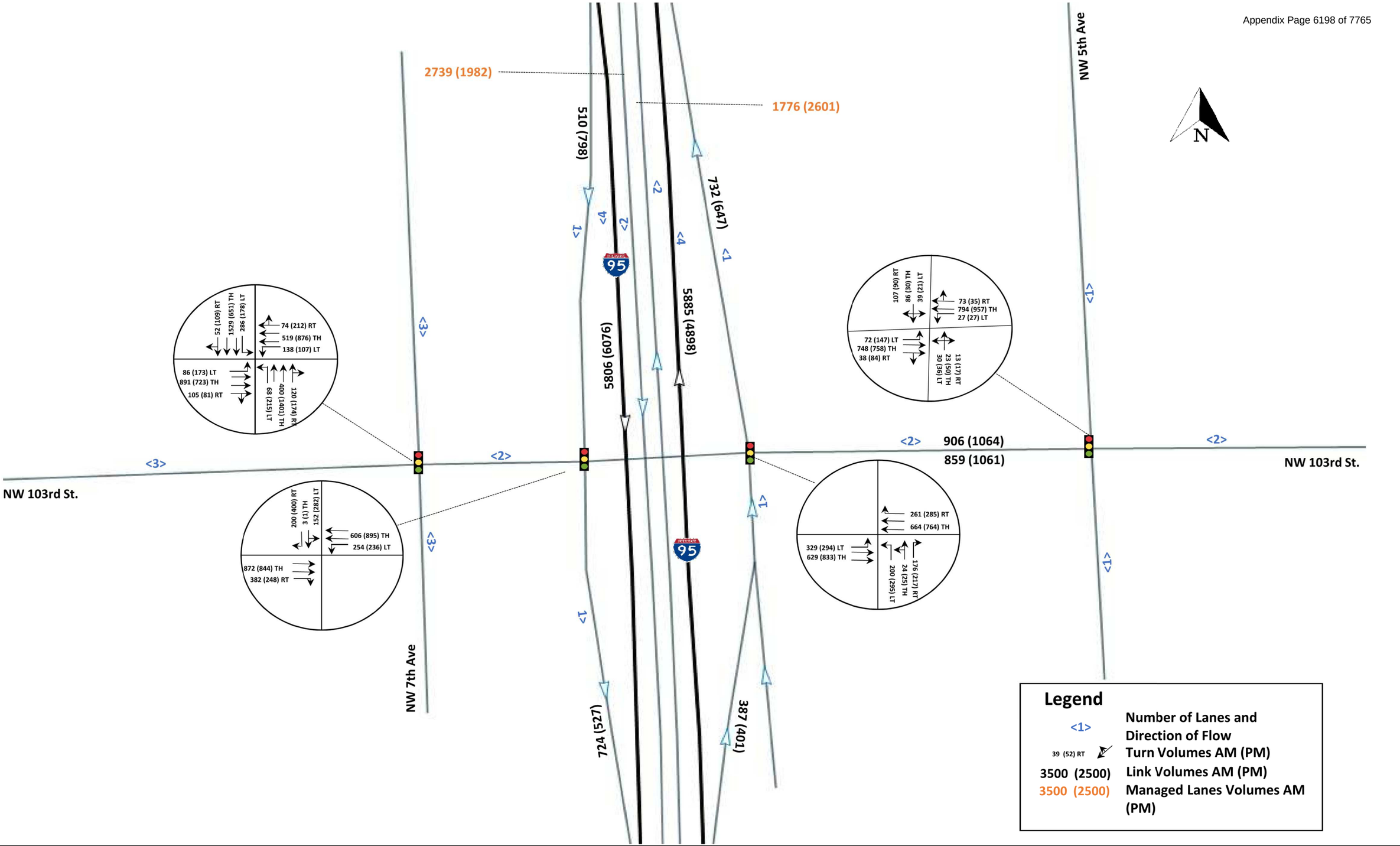
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 11 / 23



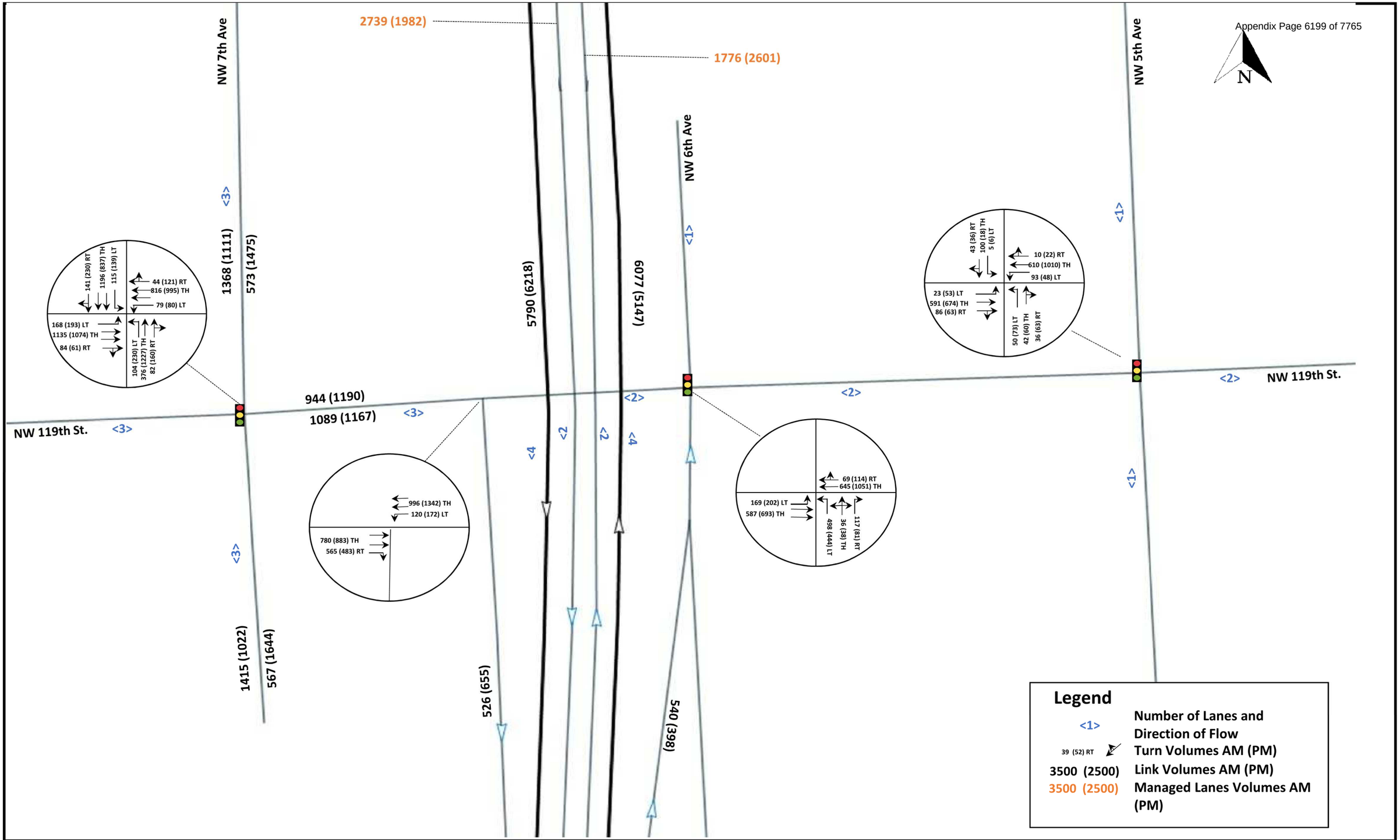
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 12 / 23**



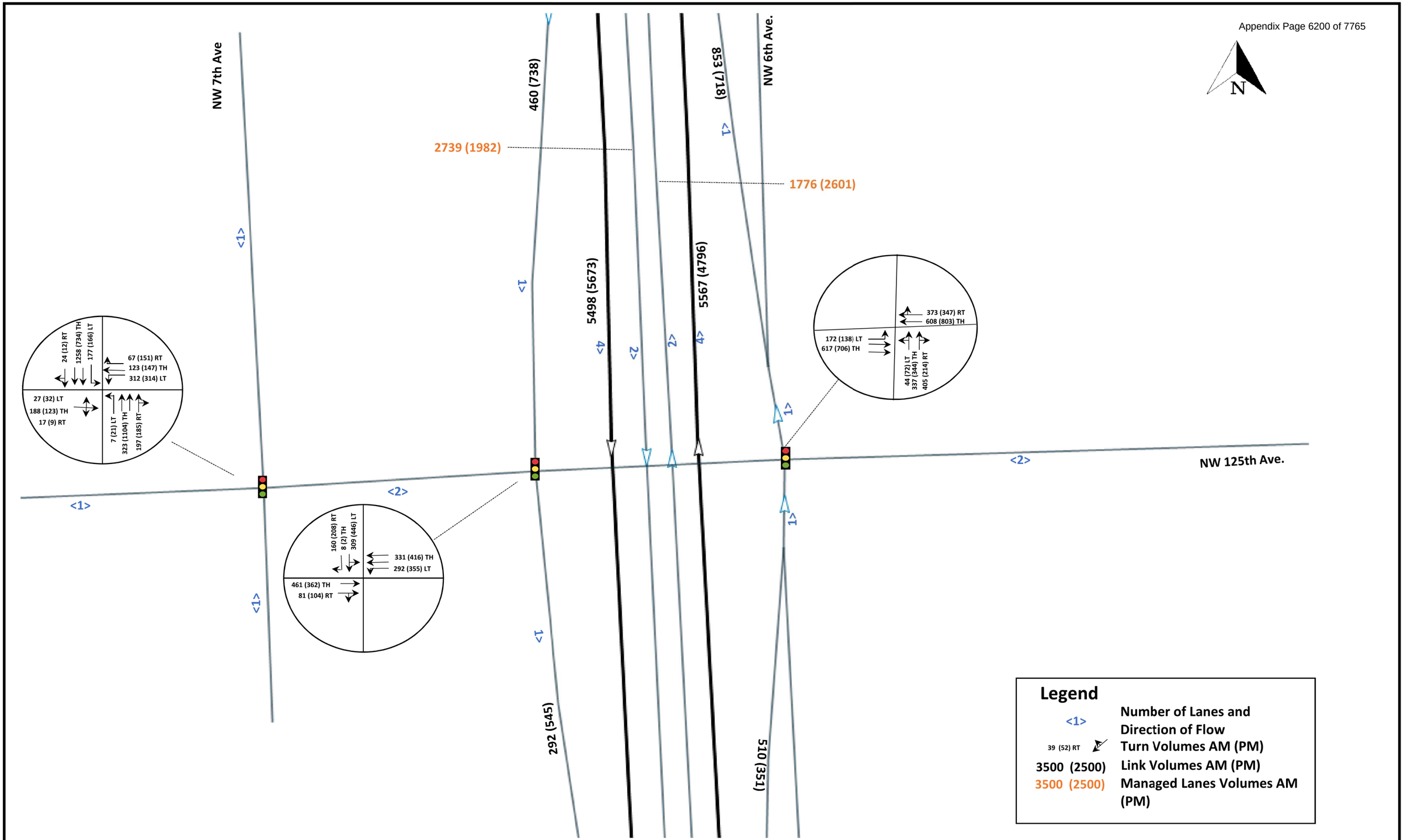
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 13 / 23



	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 14 / 23**



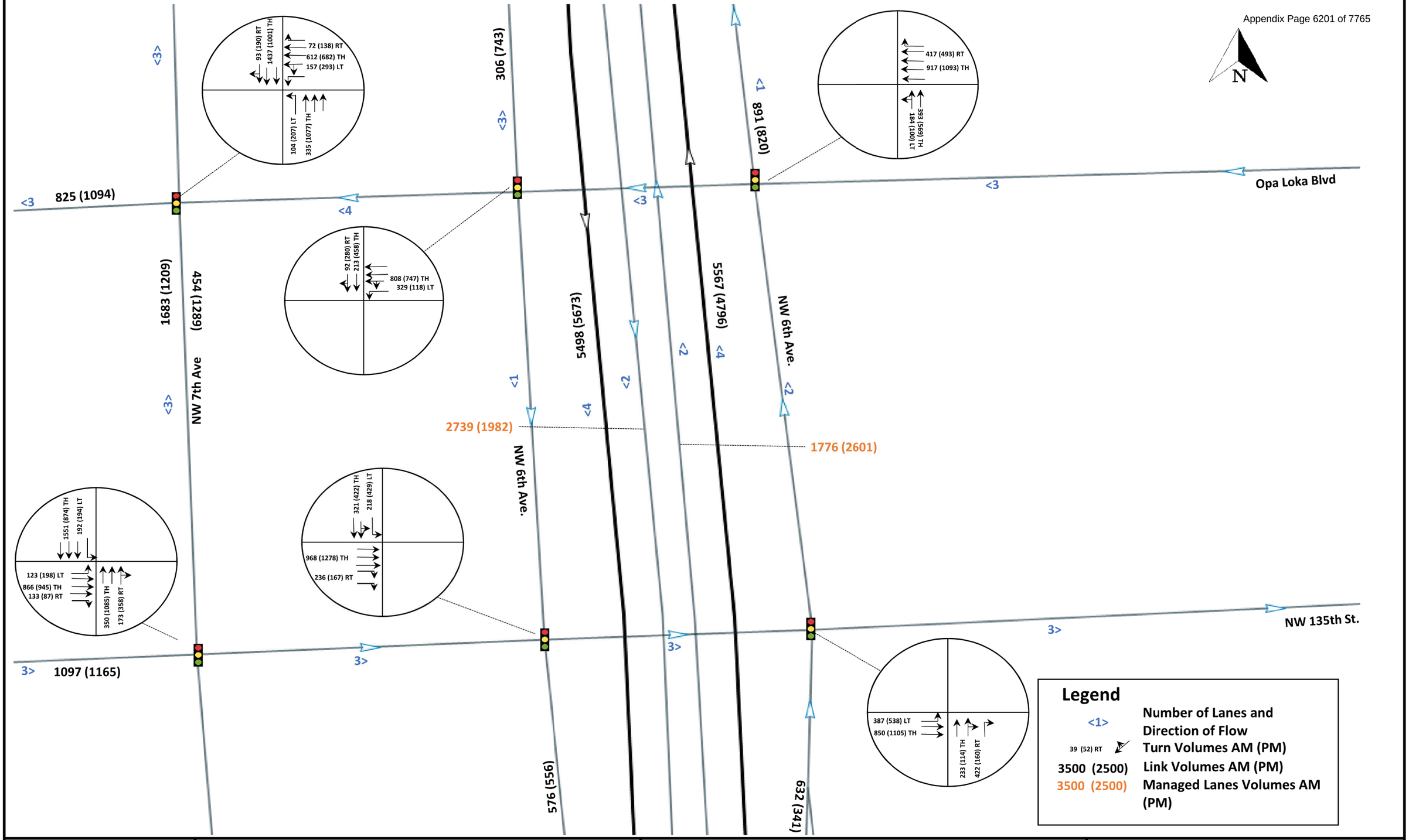
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 15 / 23



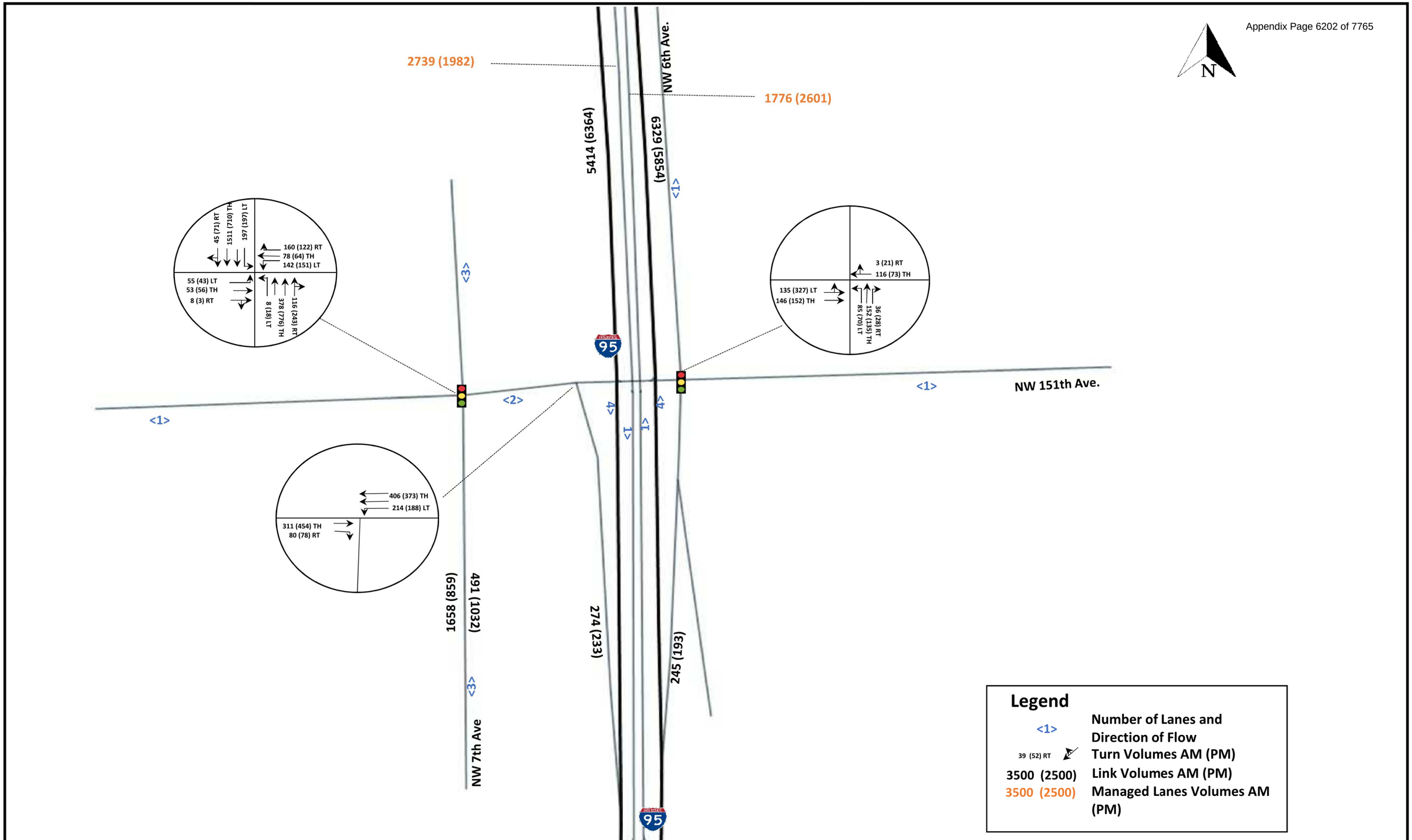
Legend

<1>	Number of Lanes and Direction of Flow
39 (52) RT	Turn Volumes AM (PM)
3500 (2500)	Link Volumes AM (PM)
3500 (2500)	Managed Lanes Volumes AM (PM)

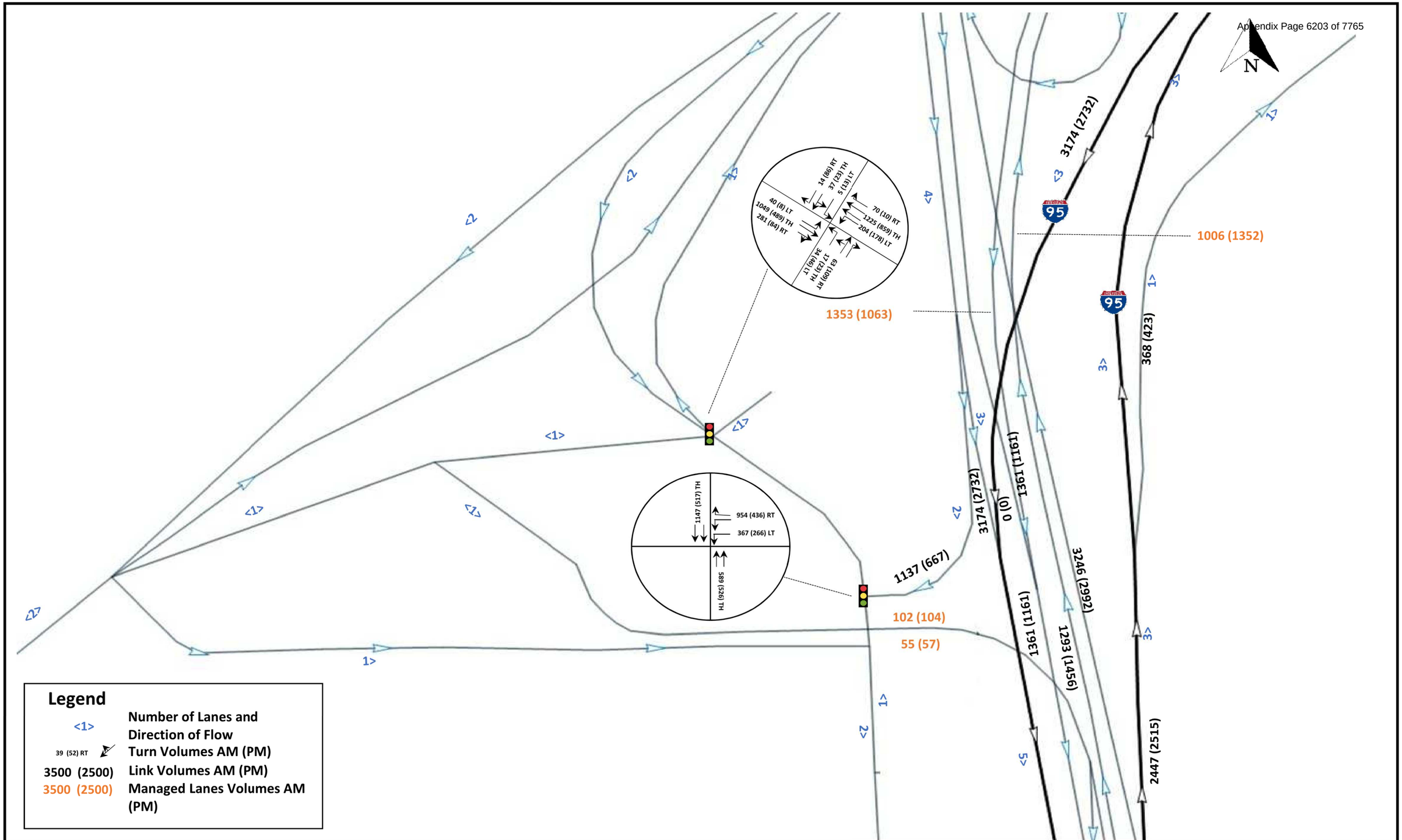
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 16 / 23



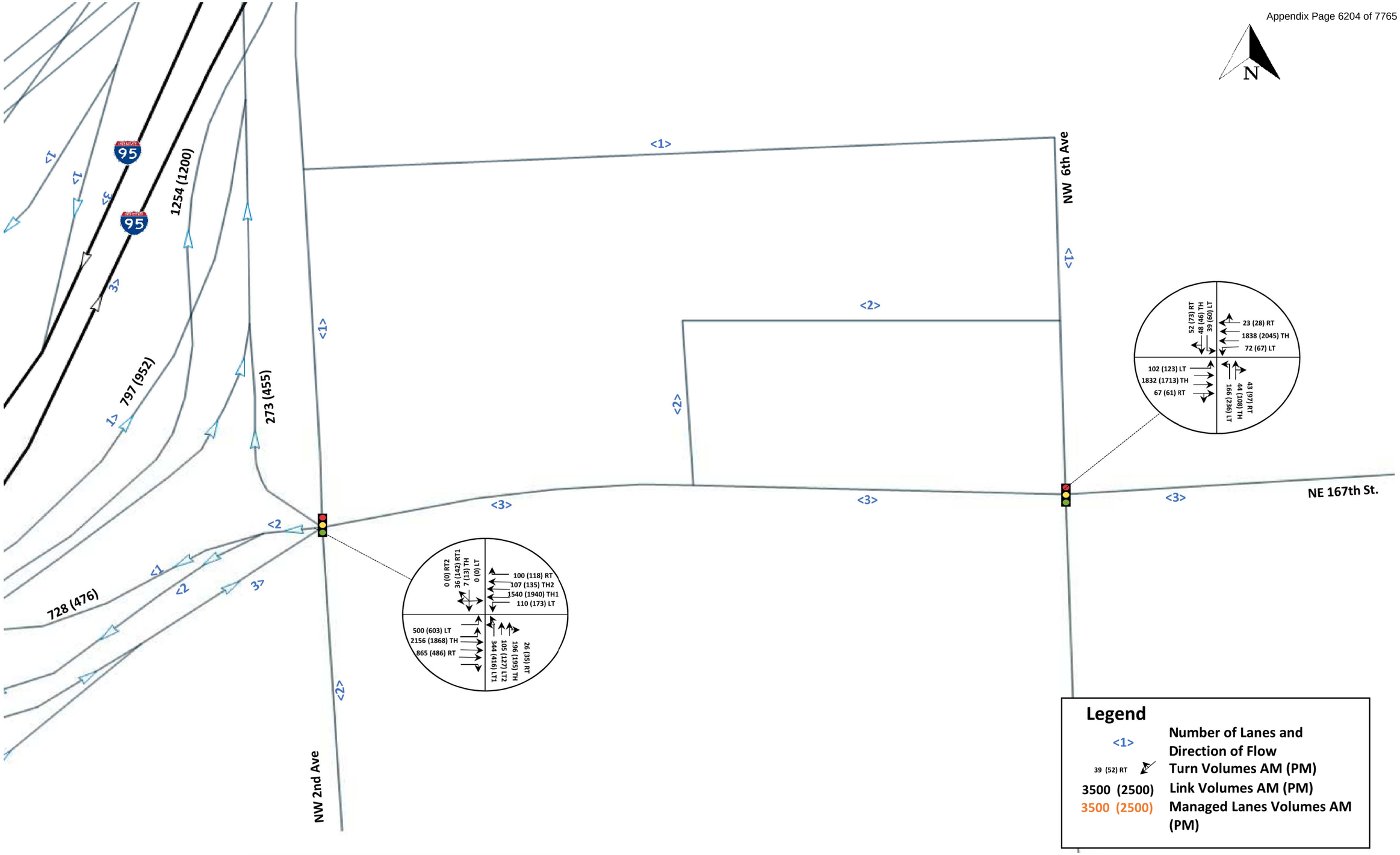
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 17 / 23**



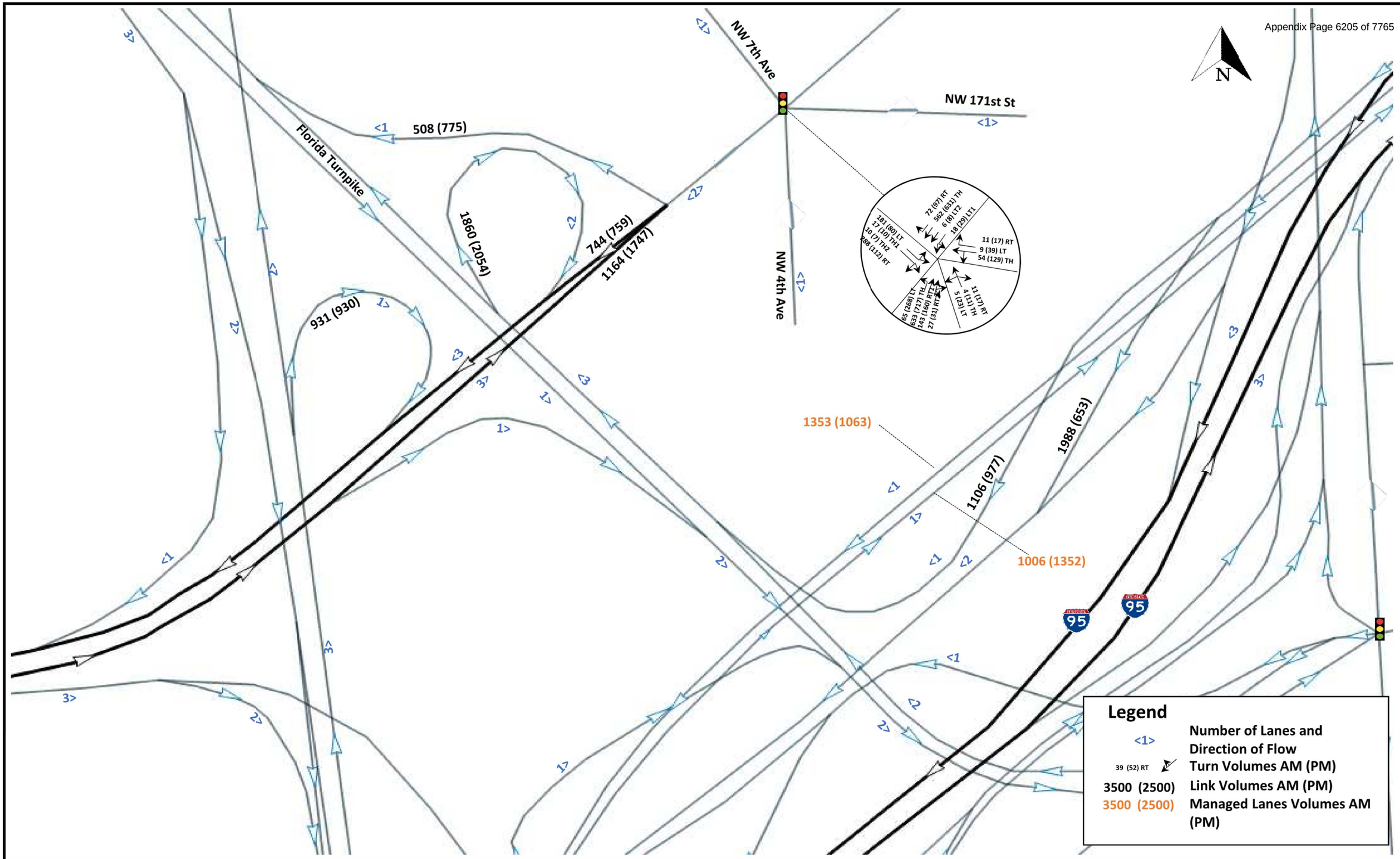
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 18 / 23**



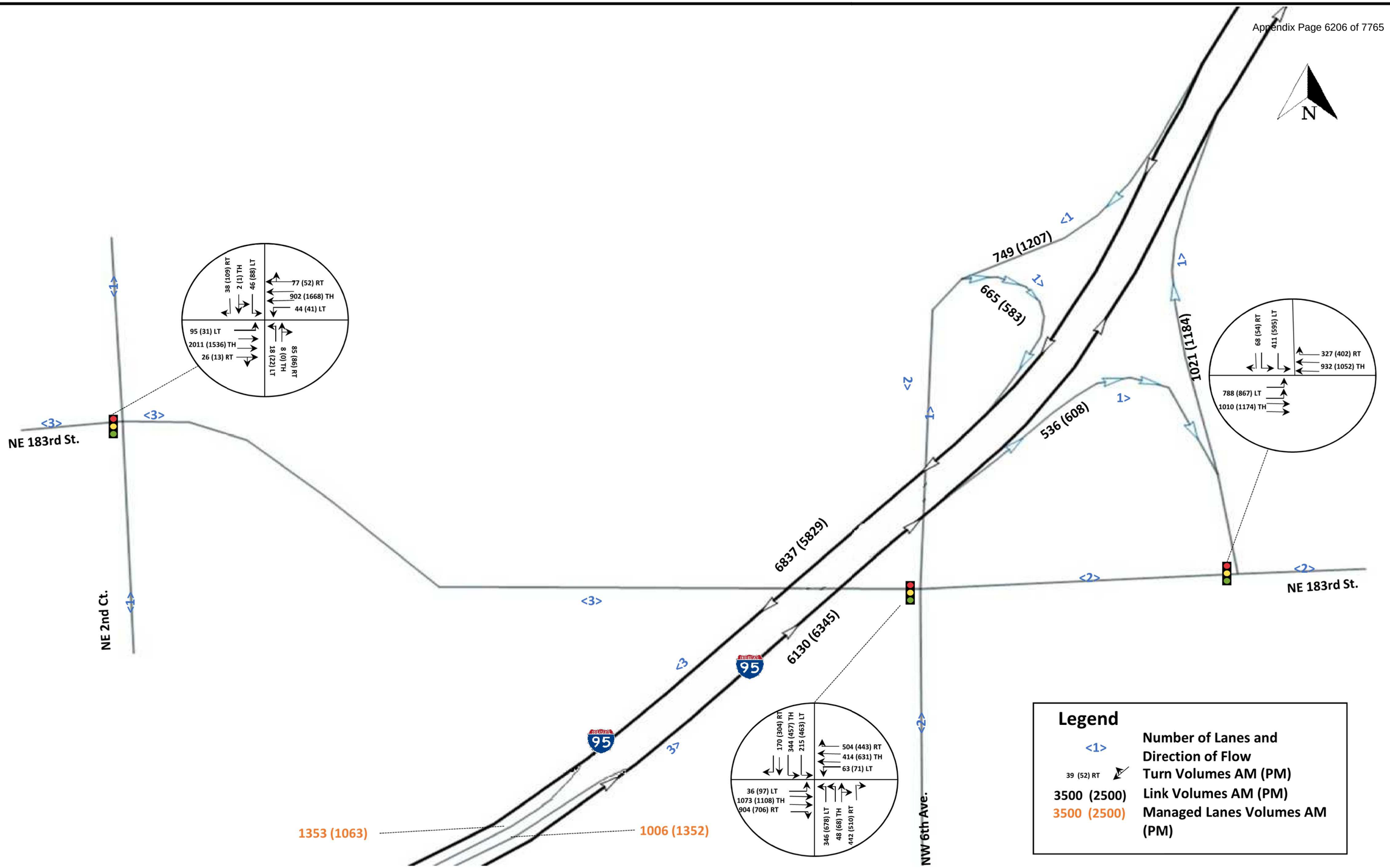
	I-95 CPS Base Year (2015)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 19 / 23



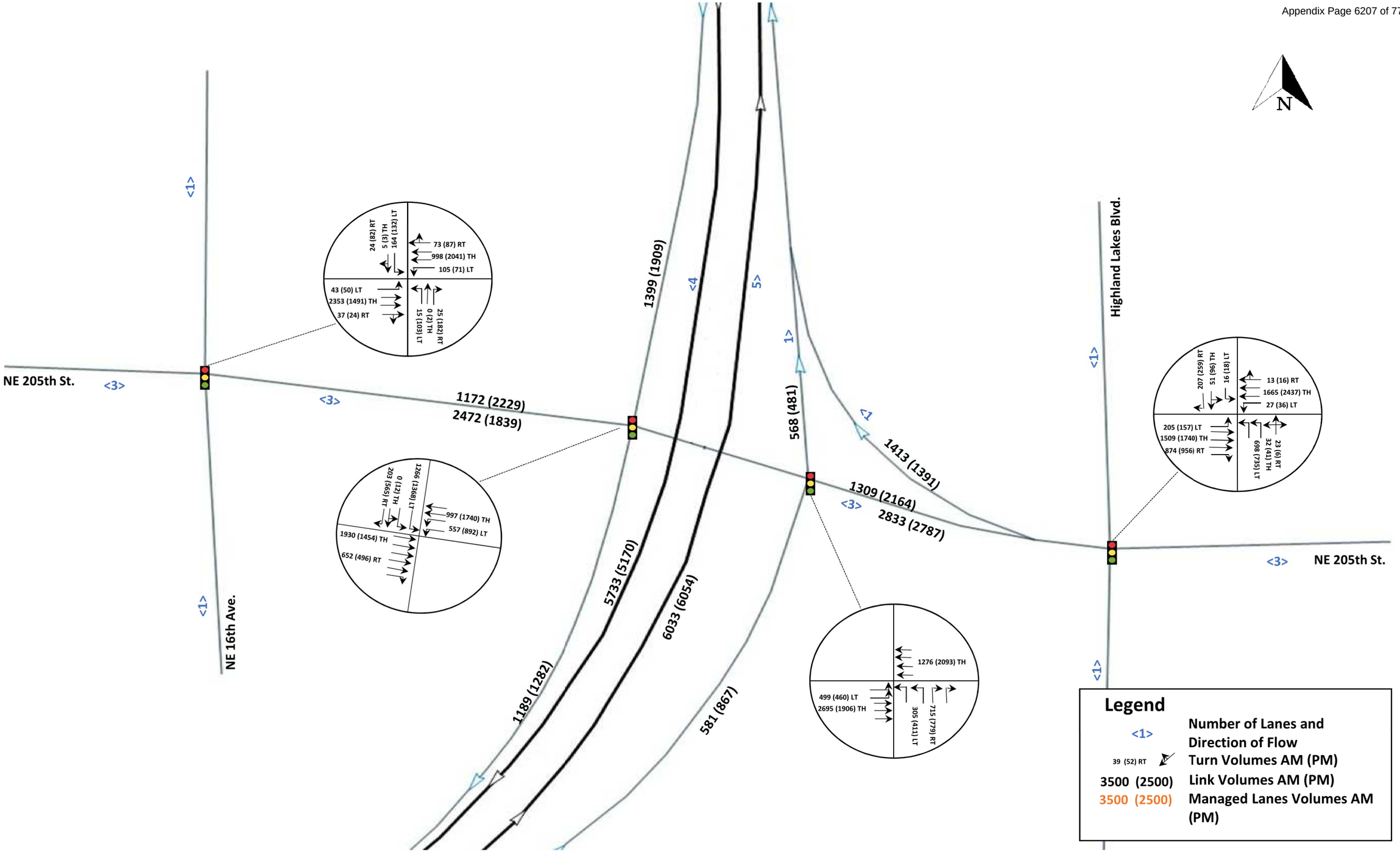
	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 20 / 23**



	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 21 / 23**

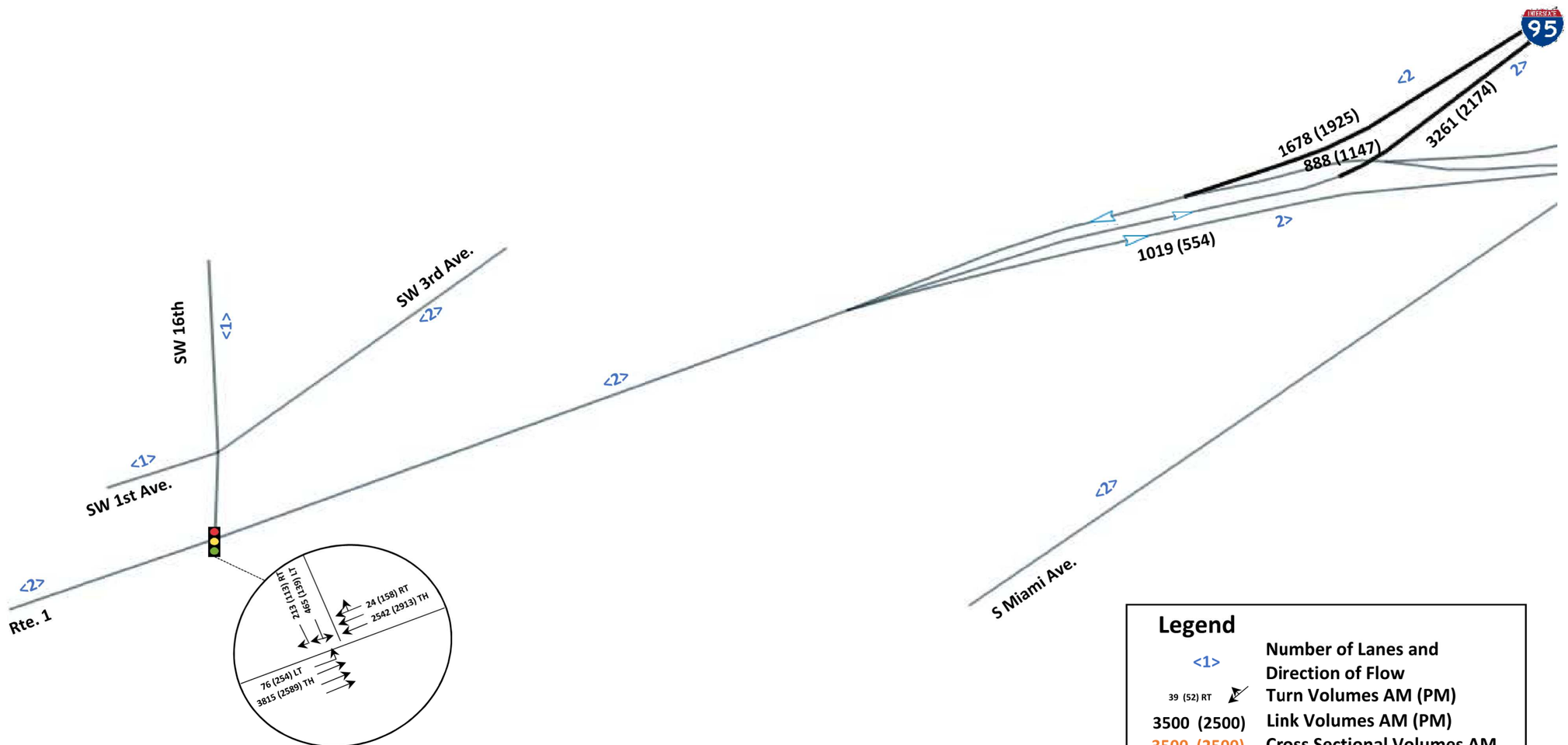


	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 22 / 23**

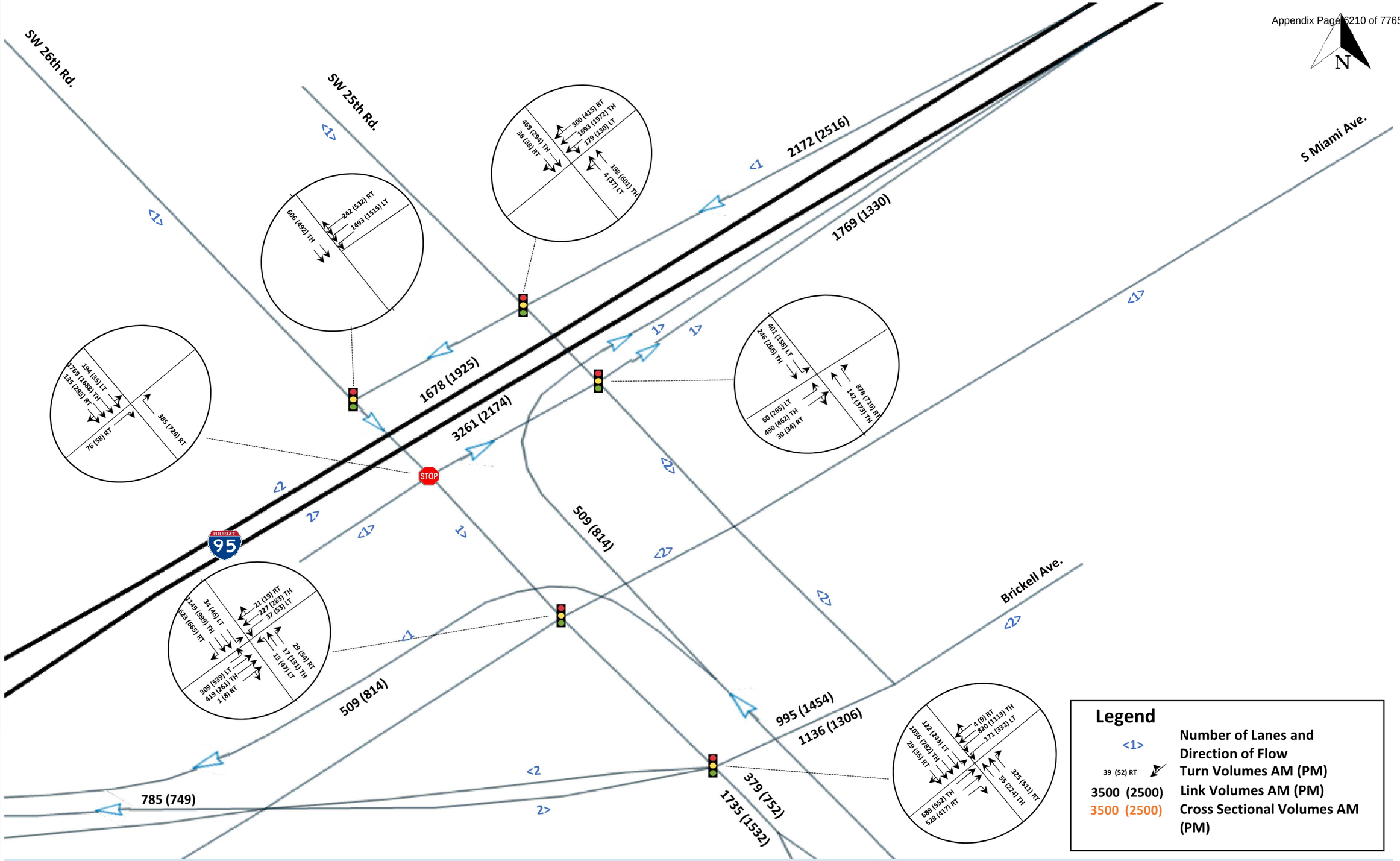


	I-95 CPS Base Year (2015)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 23 / 23**

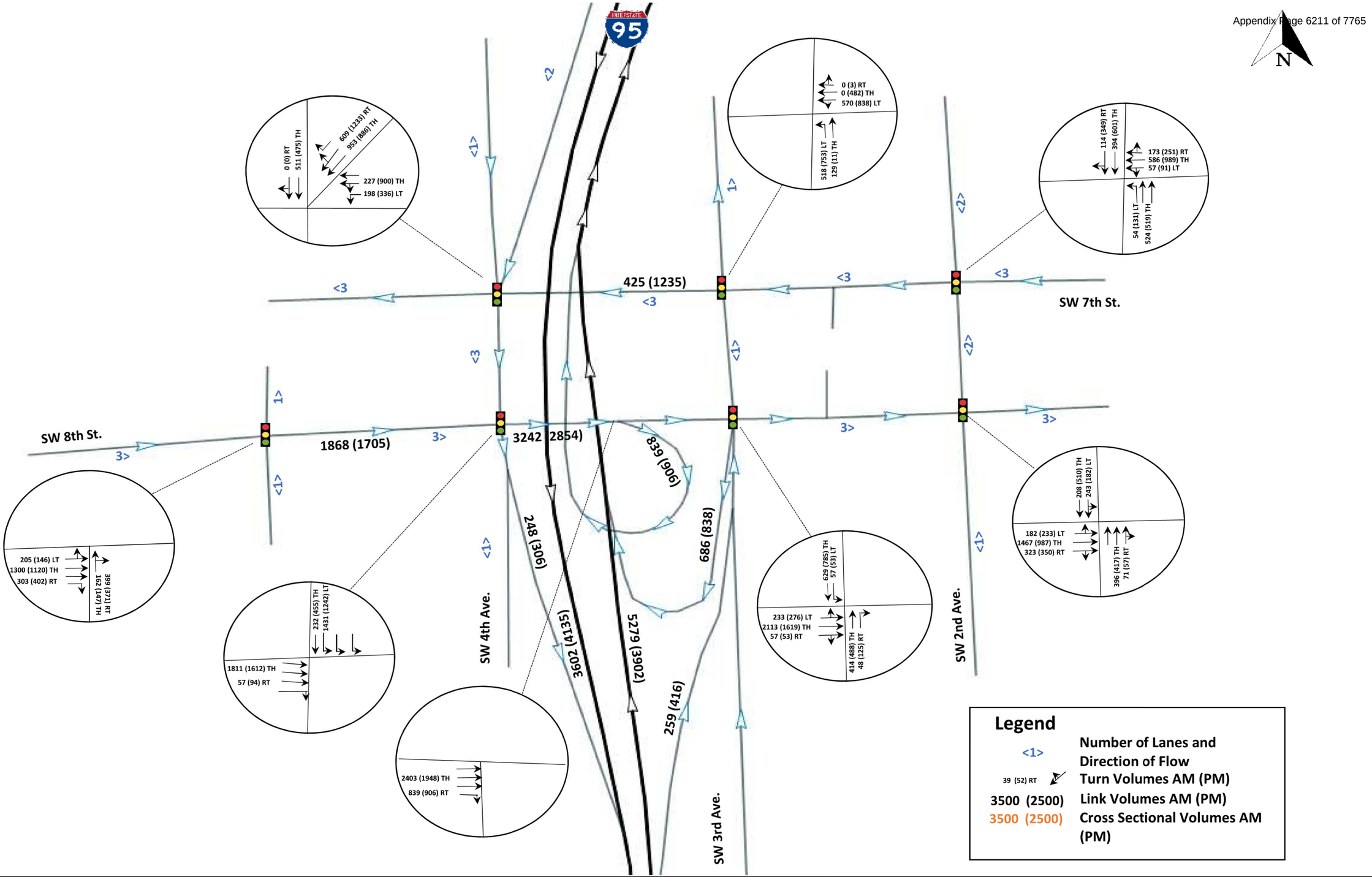
Appendix C. I-95 CPS No Build (2025)



	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 1 / 23**



	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 2 / 23**



	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 3 / 23**

N

261 (568) RT
294 (283) TH

138 (78) RT
156 (204) TH
1219 (1428) TH
129 (112) LT

26 (345) RT
412 (544) TH
1135 (1033) LT
443 (430) TH

191 (214) RT
540 (532) TH
188 (462) TH
571 (1166) LT

285 (316) TH
486 (983) RT

51 (107) RT
295 (580) TH
425 (612) LT
97 (172) TH
58 (49) RT
238 (198) LT
612 (932) RT

5 (6) TH
923 (1182) TH
8 (10) TH

54 (80) LT
671 (971) TH
837 (551) TH
797 (538) RT

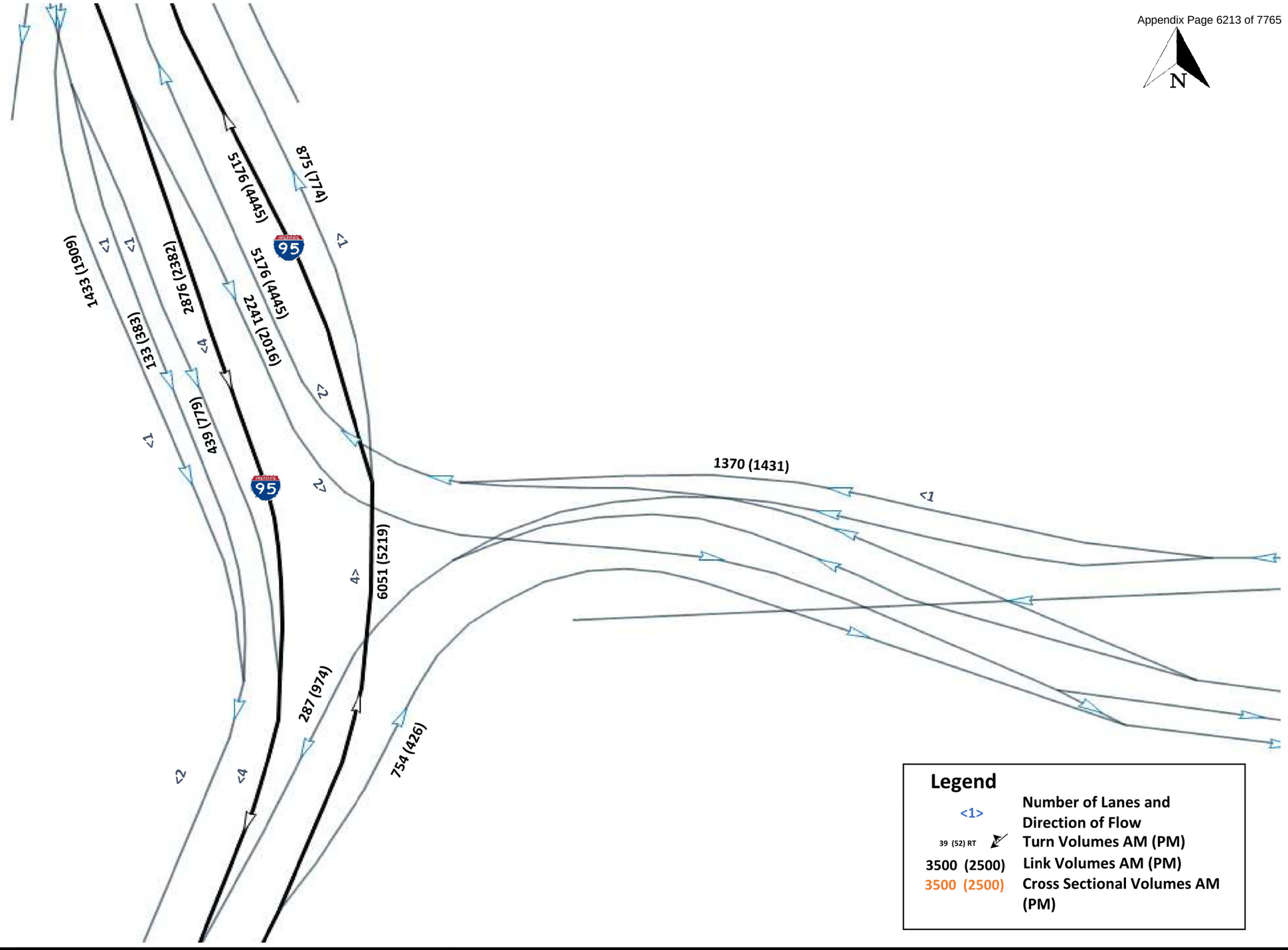
261 (568)
603 (1102)
1634 (1089)
876 (371)
217 (455)

SE 1st. Ave.
SE 2nd Ave.
SE 2nd St.
SE 3rd St.
SW 3rd St.
S Miami Ave.
Brickell Ave.

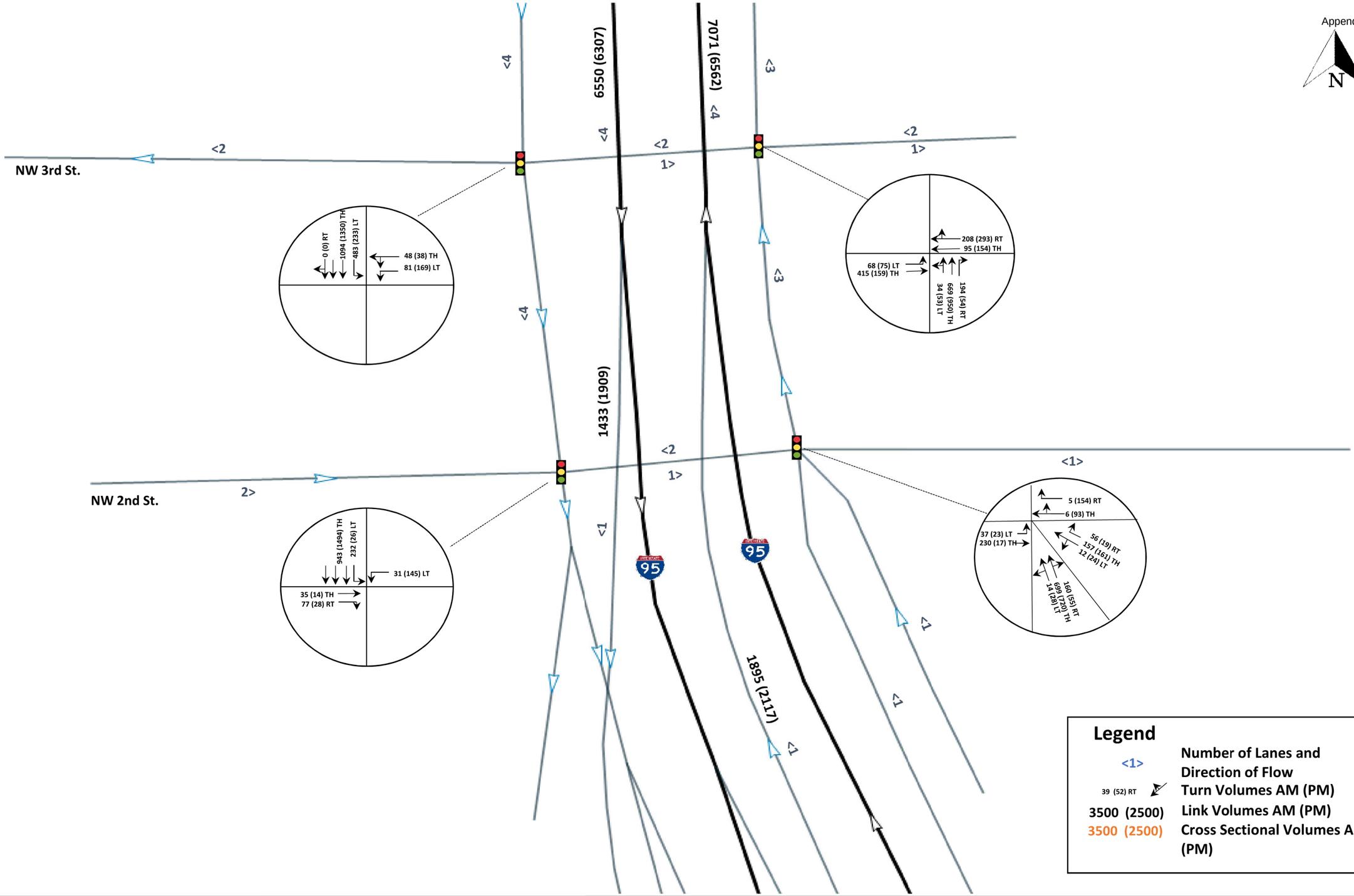
Legend

<1>	Number of Lanes and Direction of Flow
39 (52) RT	Turn Volumes AM (PM)
3500 (2500)	Link Volumes AM (PM)
3500 (2500)	Cross Sectional Volumes AM (PM)

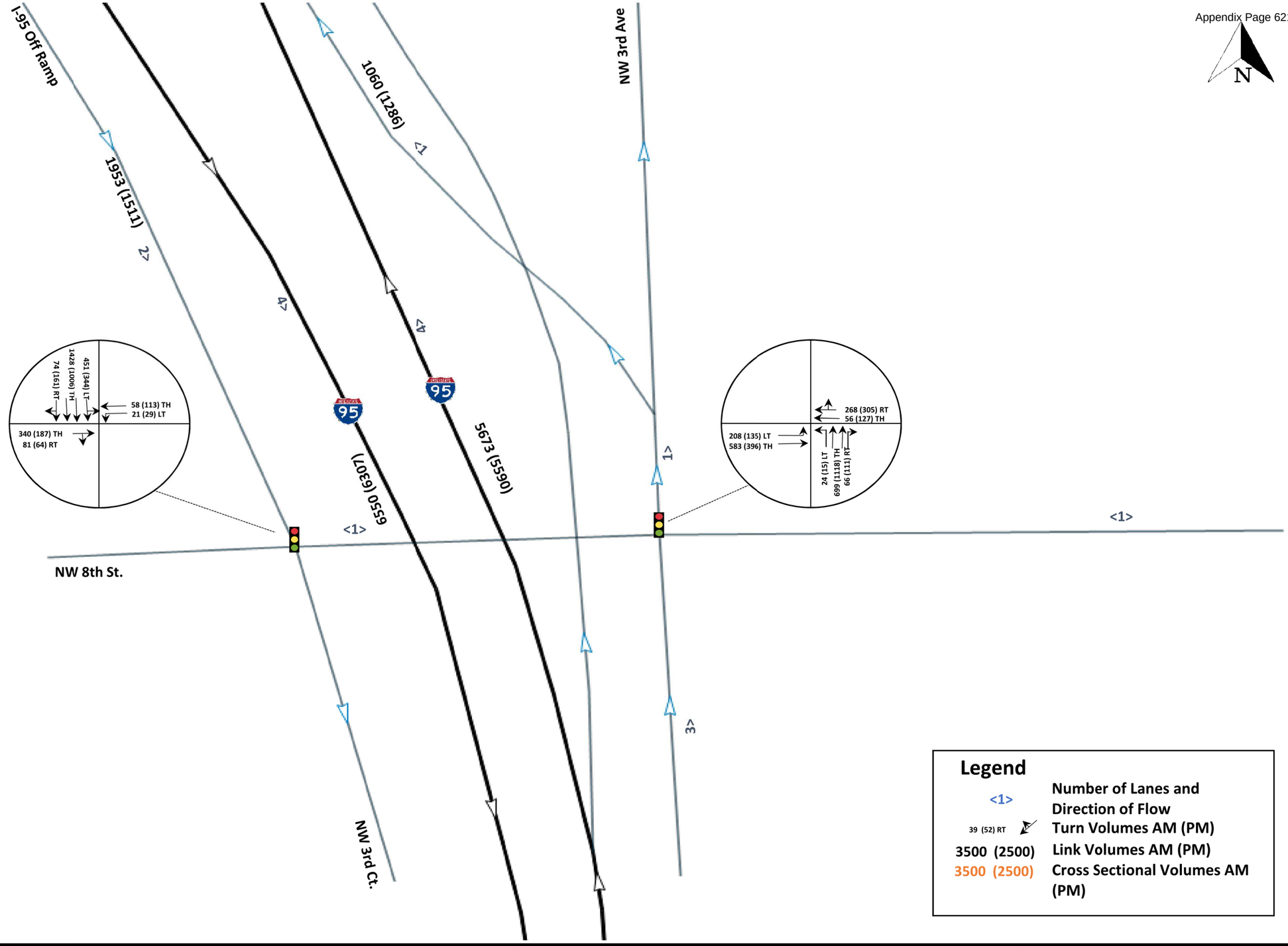
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 4 / 23**



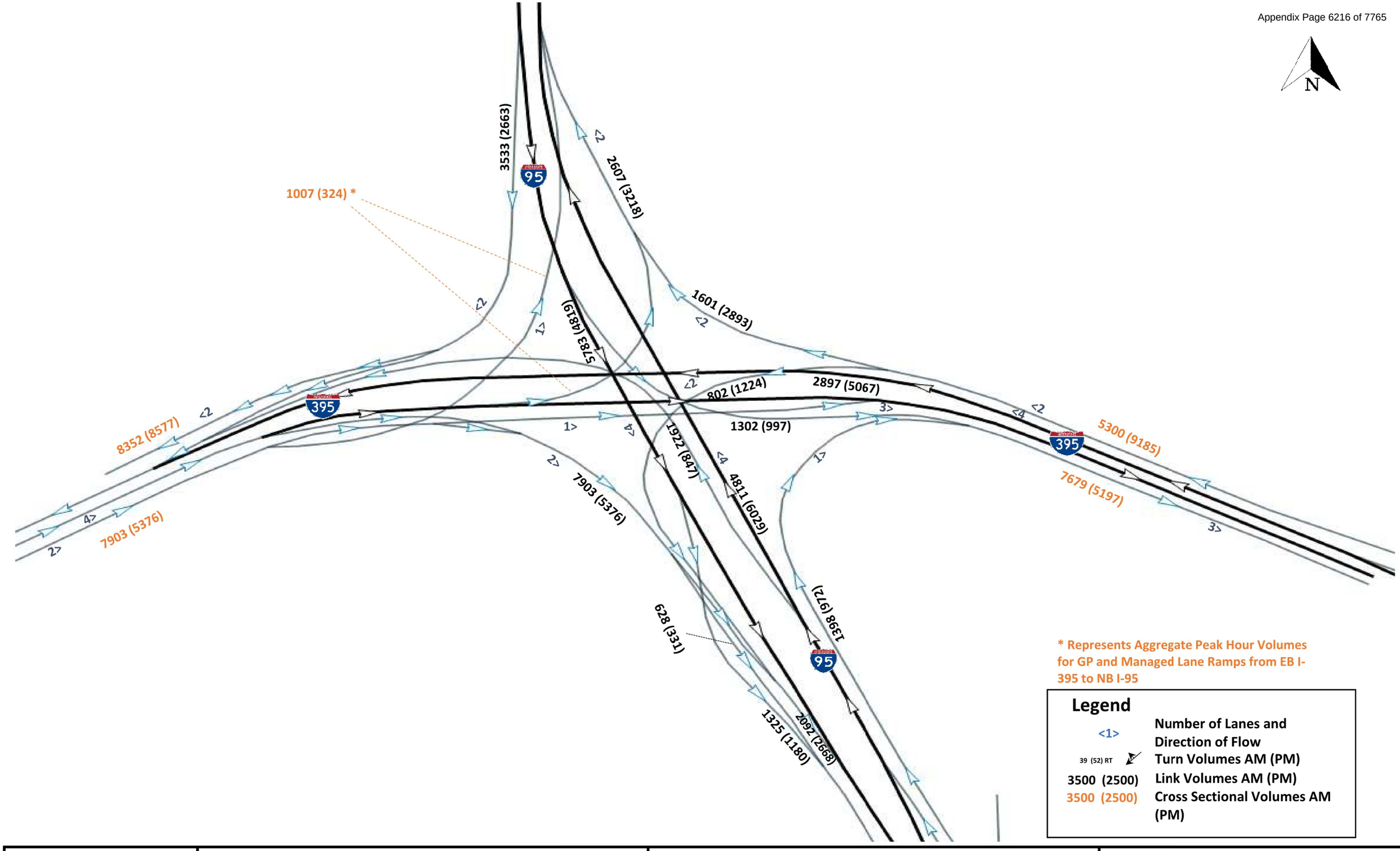
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 5 / 23**



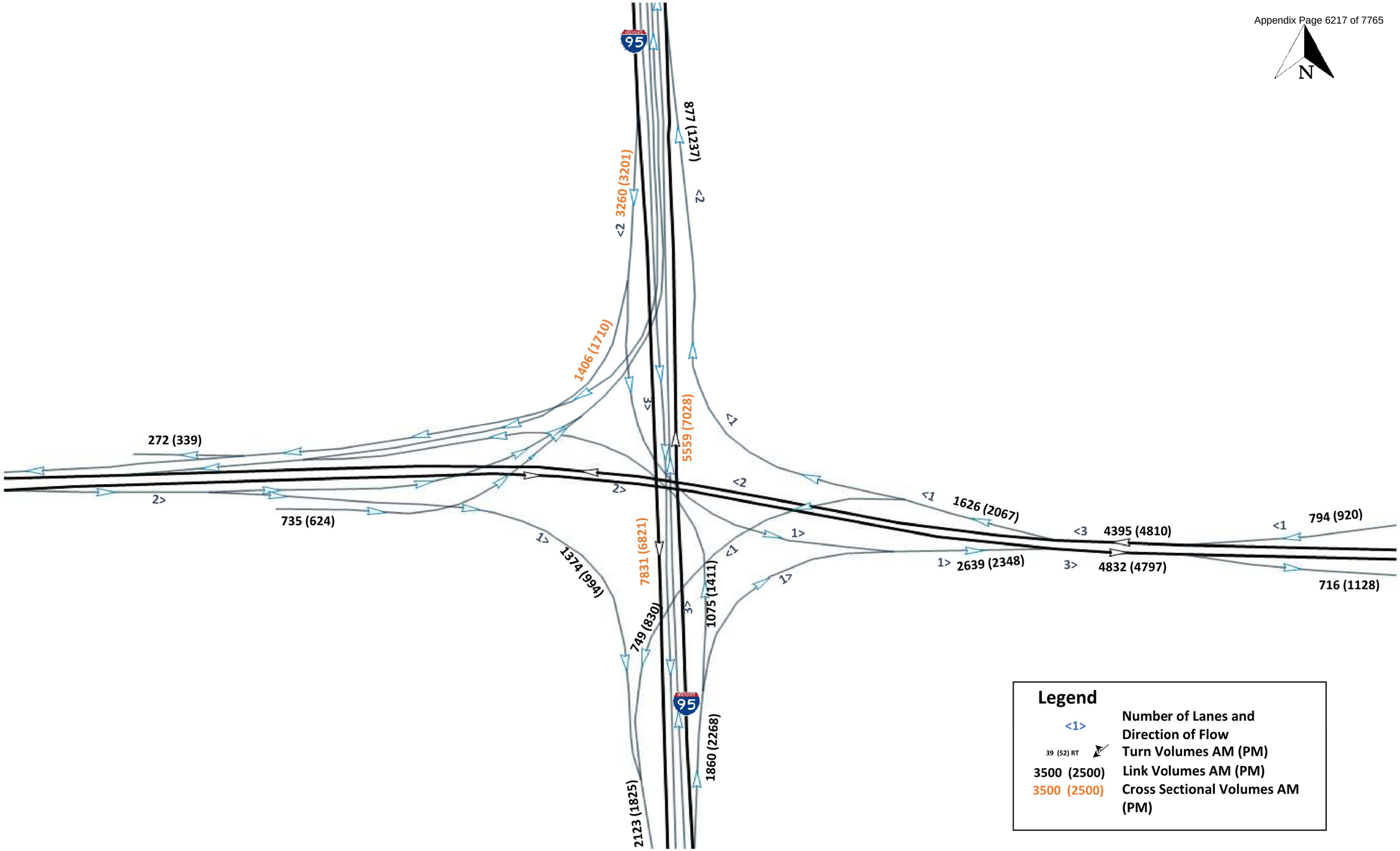
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 6 / 23**



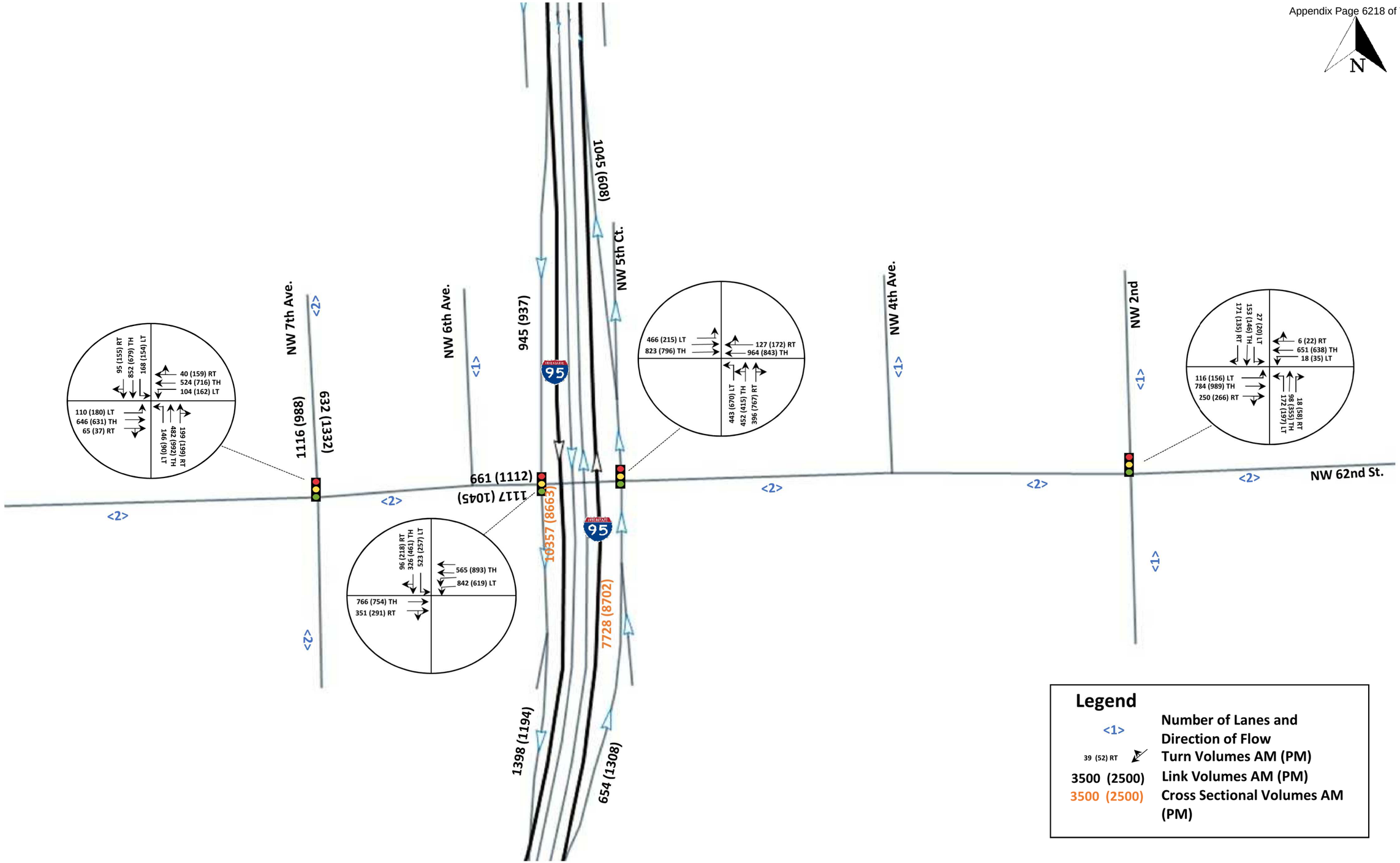
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 7 / 23**



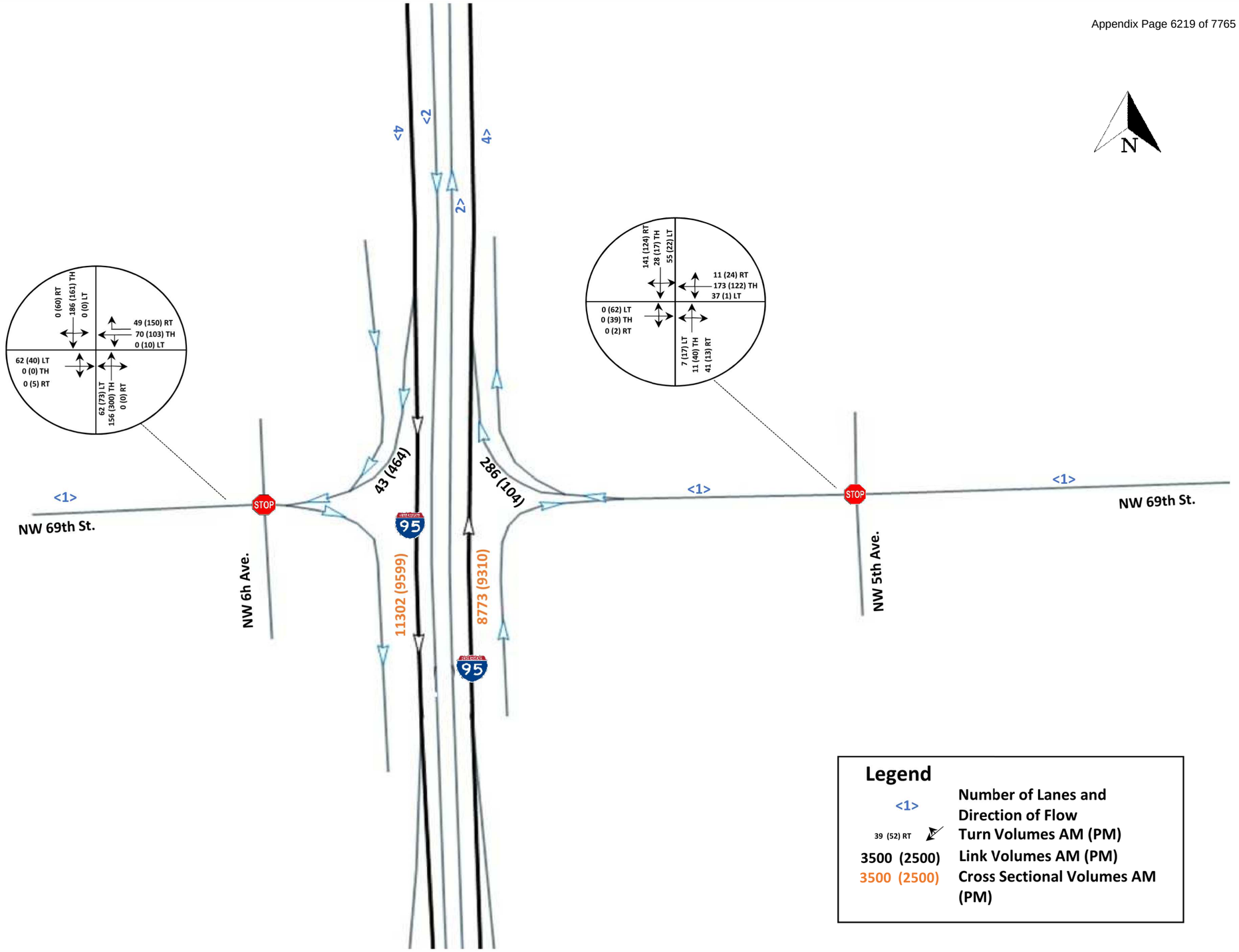
	I-95 CPS No Build (2025)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 8 / 23



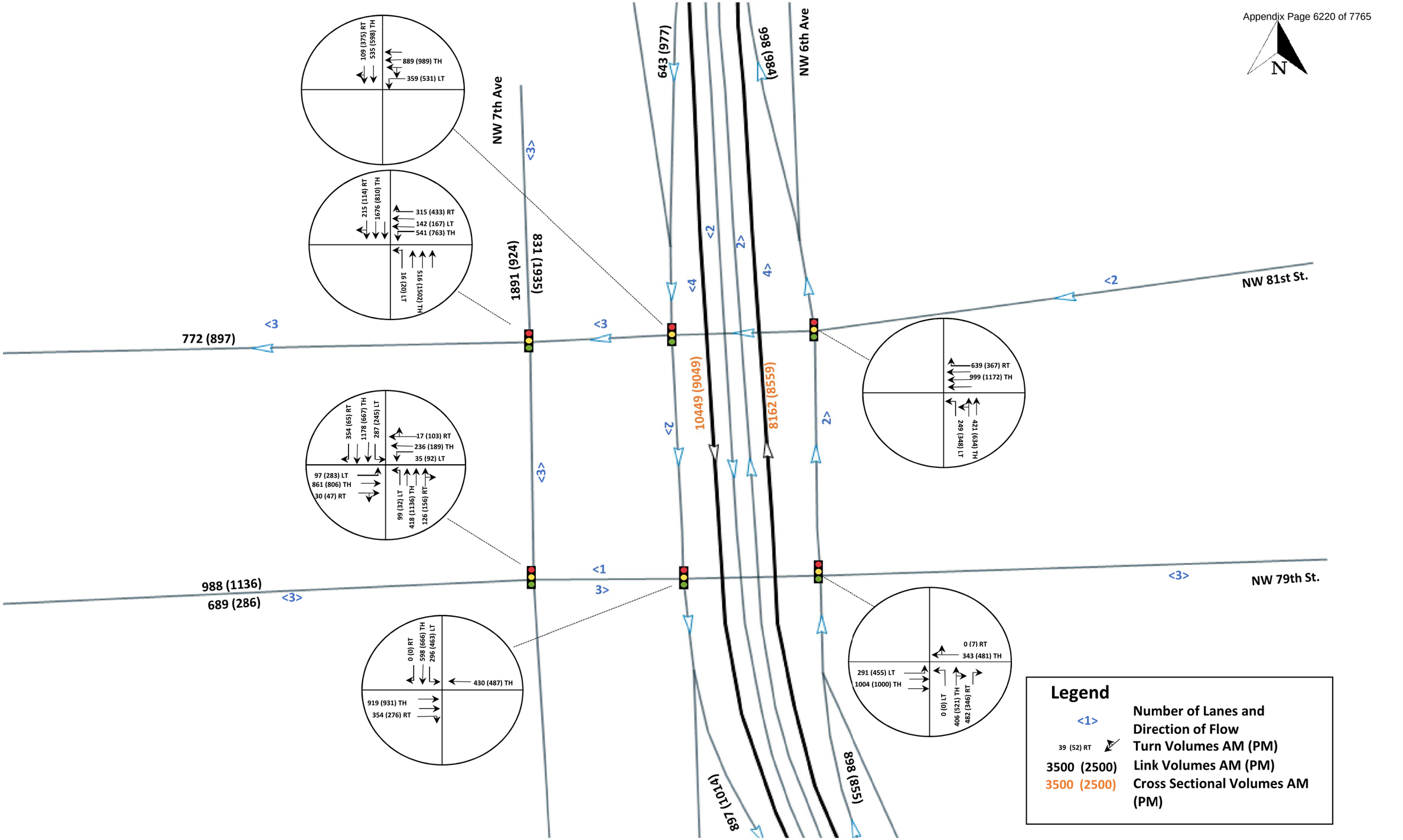
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 9 / 23**



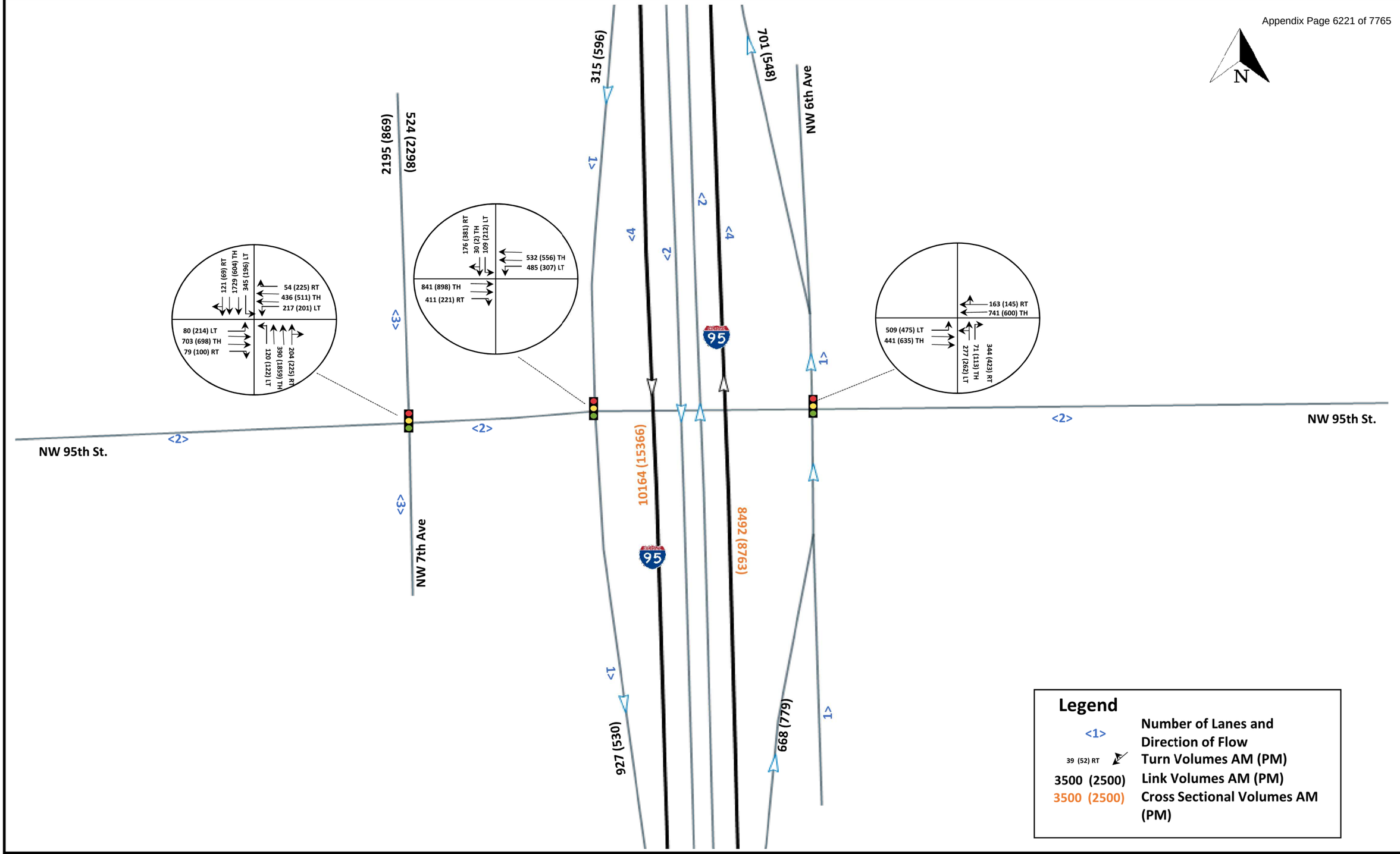
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 10 / 23**



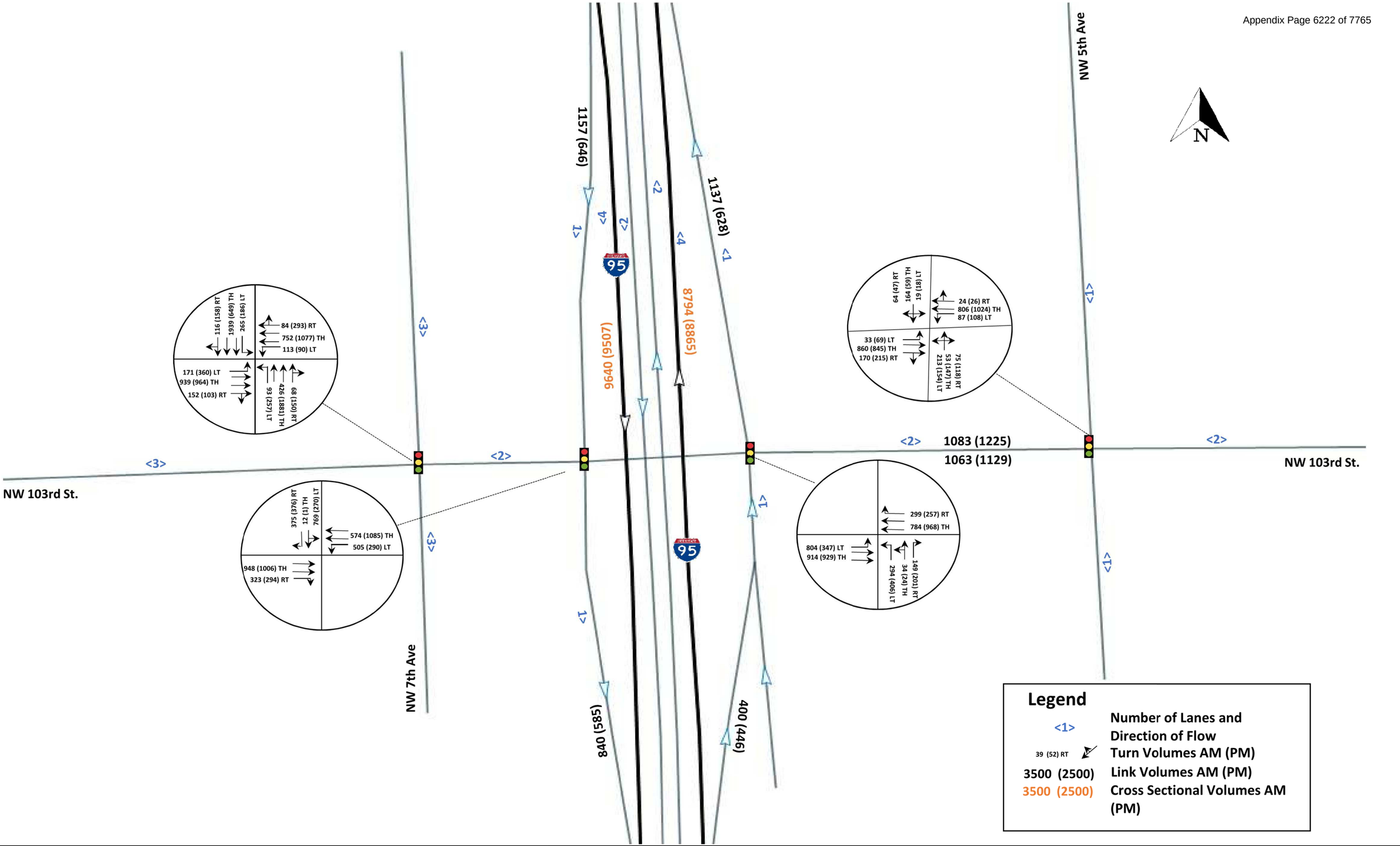
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 11 / 23**



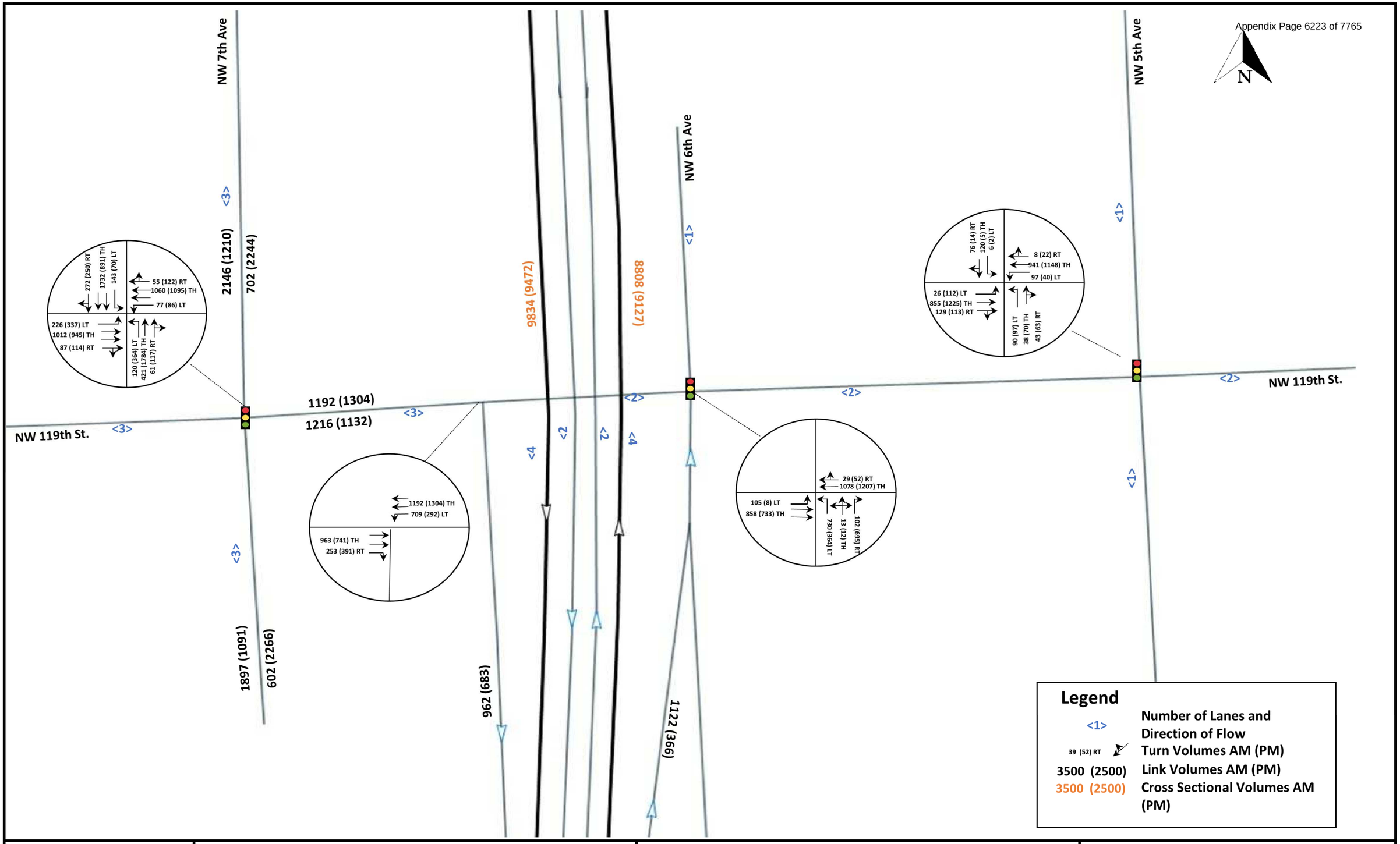
	I-95 CPS No Build (2025)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 12 / 23



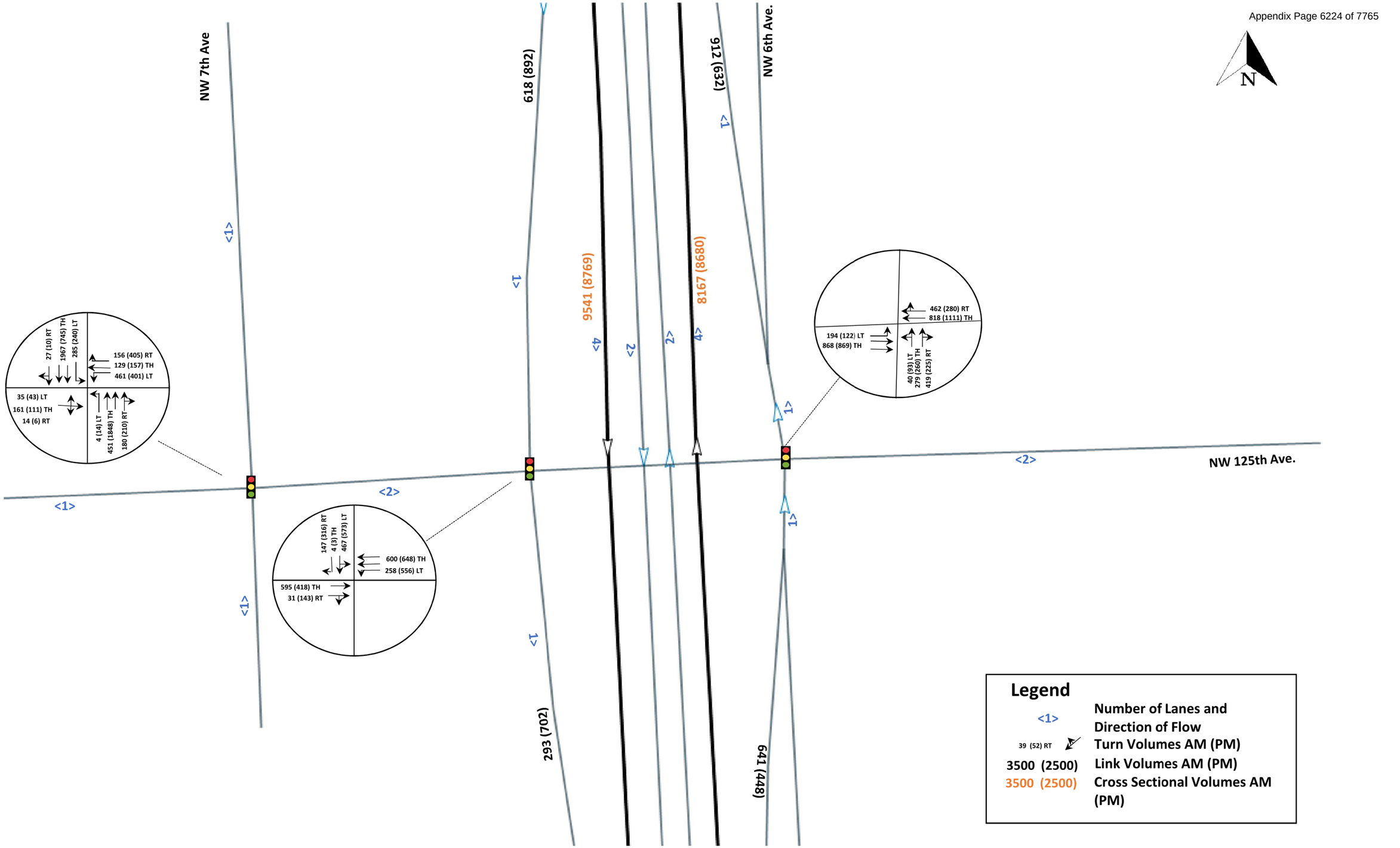
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 13 / 23**



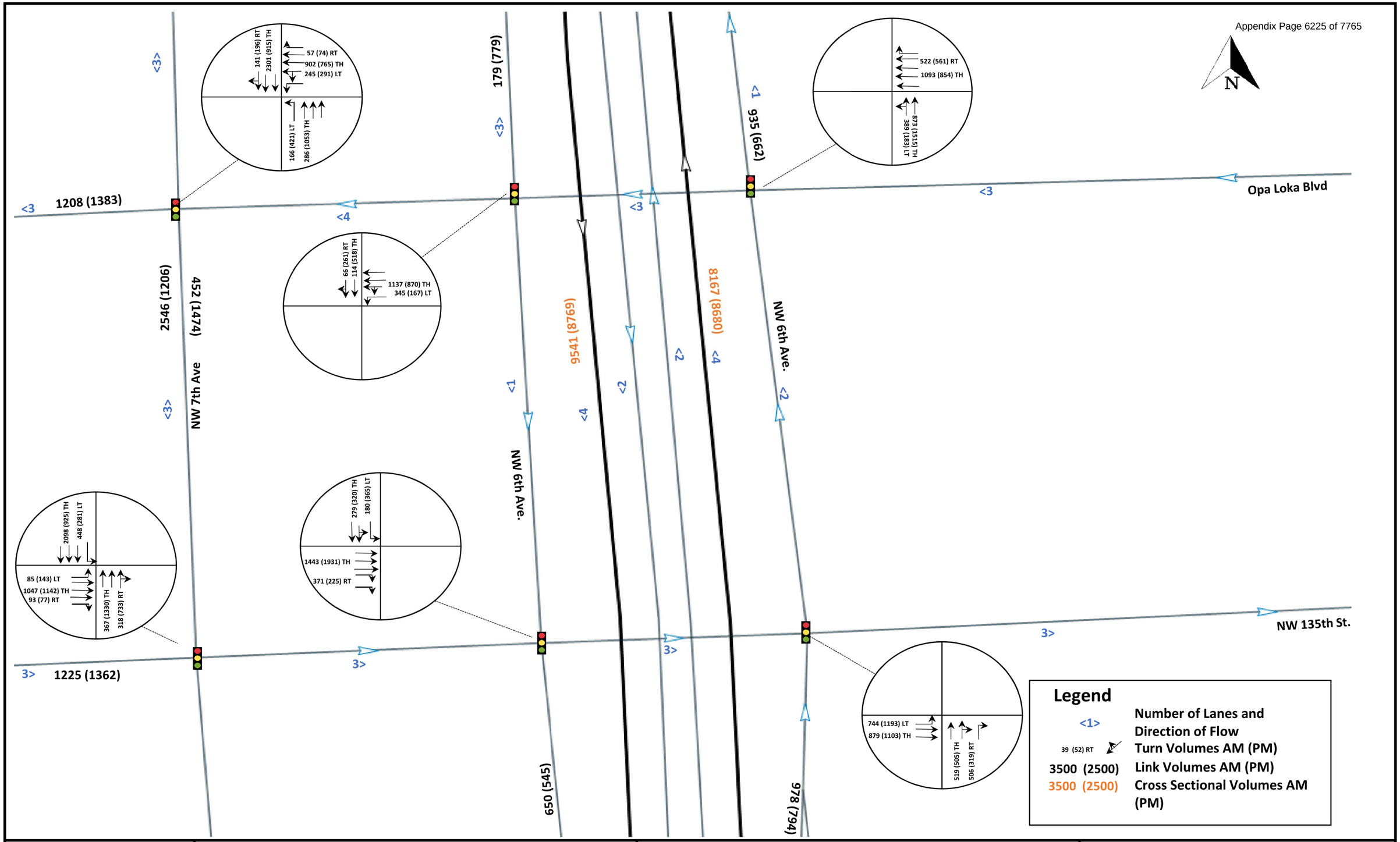
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 14 / 23**



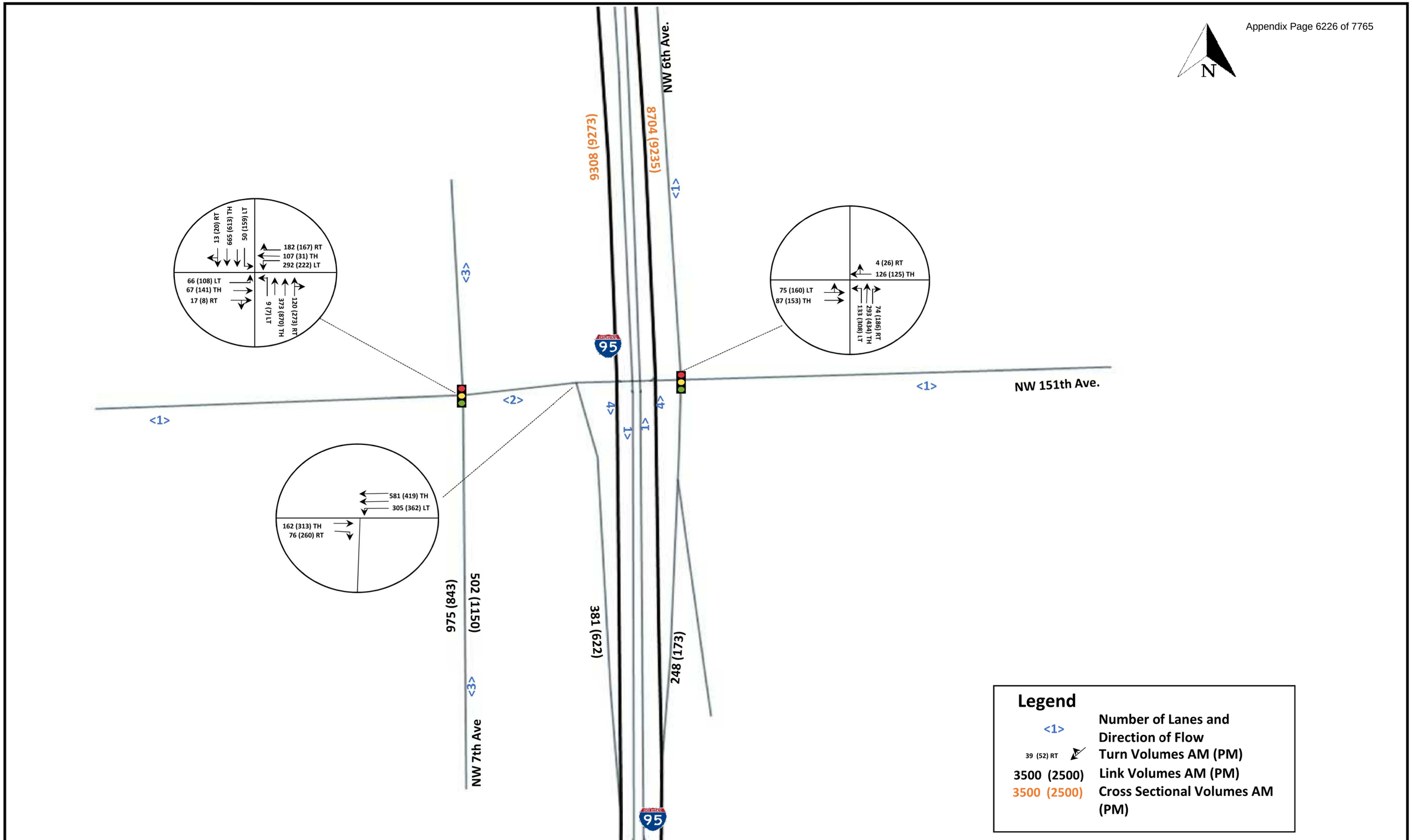
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 15 / 23**



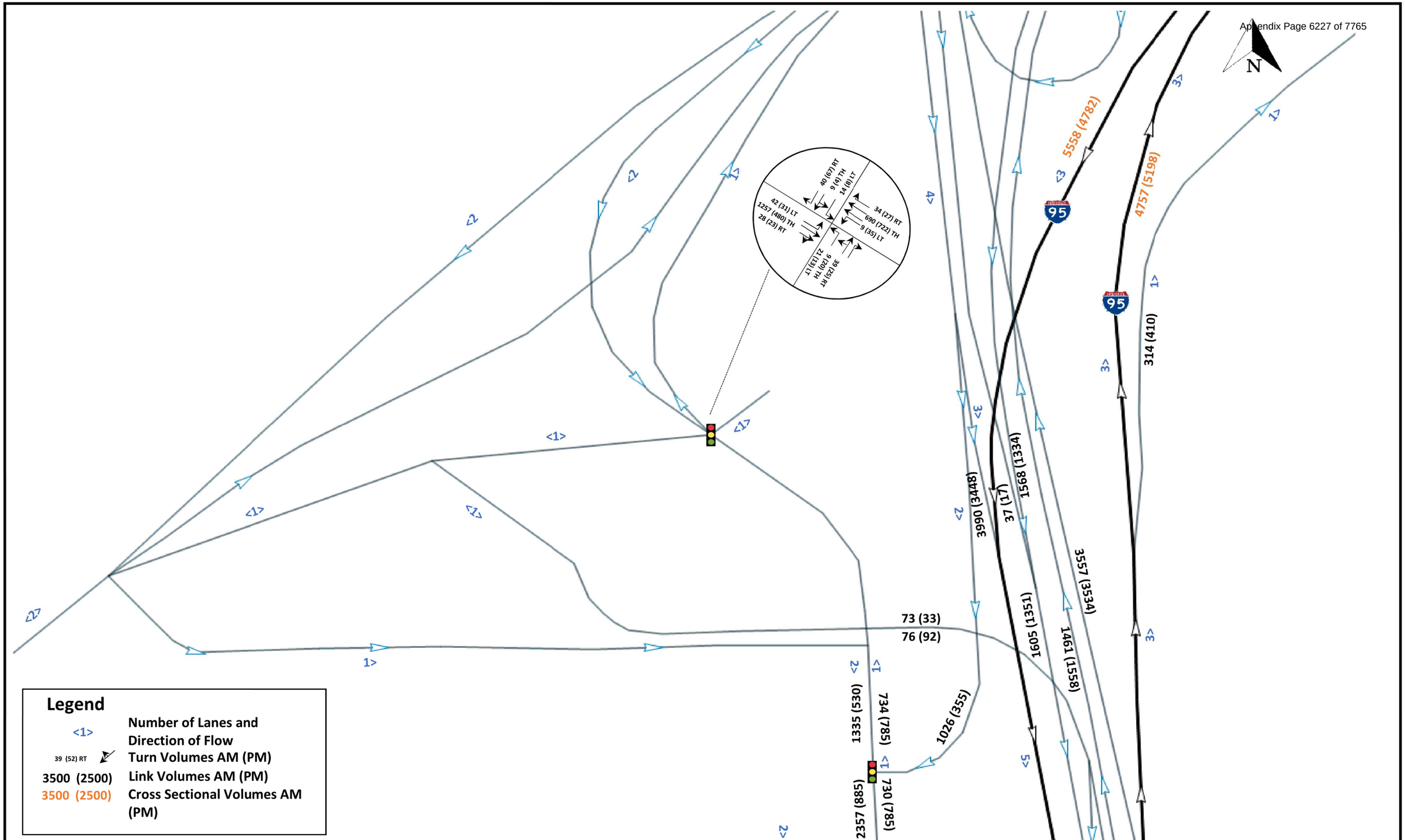
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 16 / 23**



	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 17 / 23**

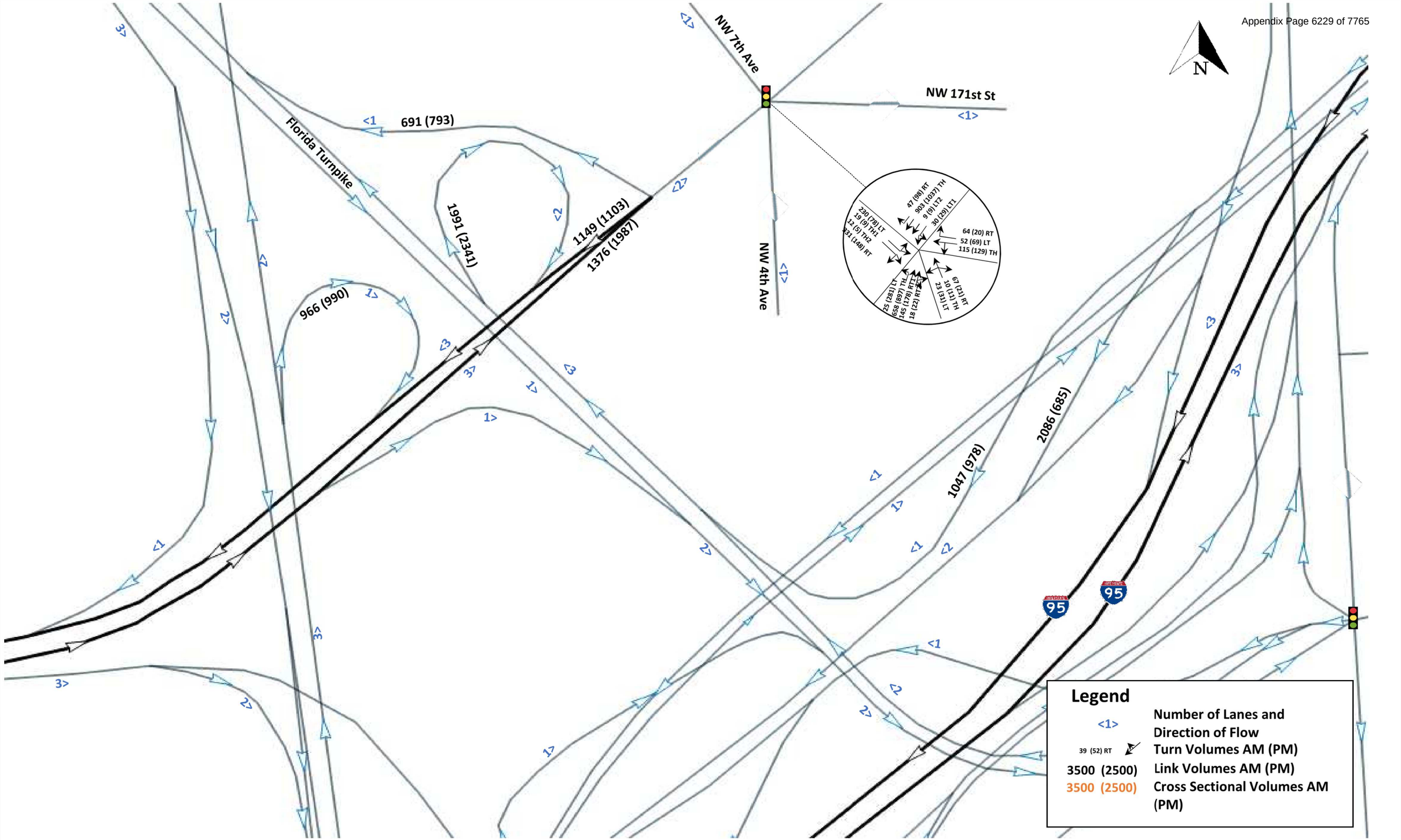


	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 18 / 23**

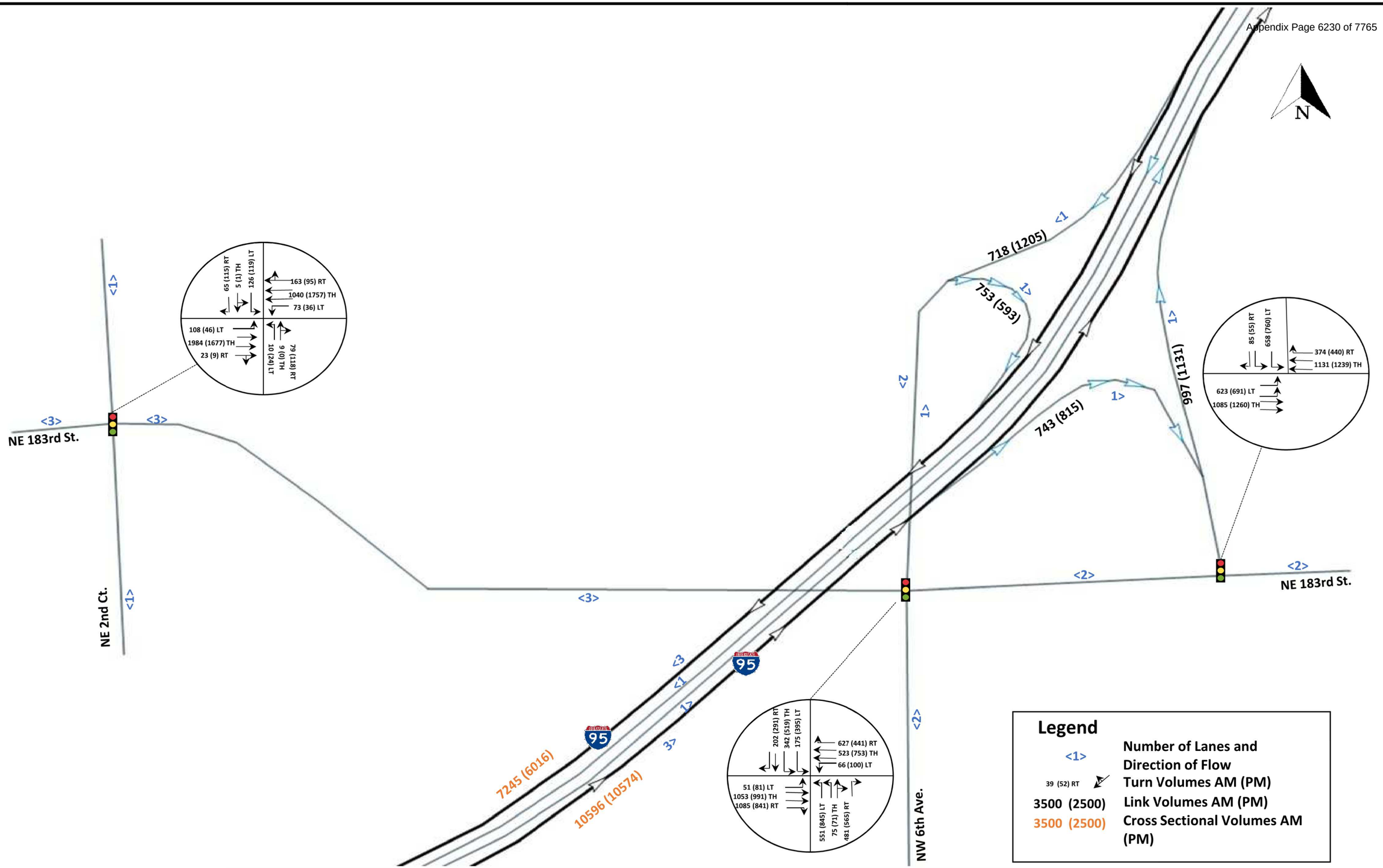


	I-95 CPS No Build (2025)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 19 / 23

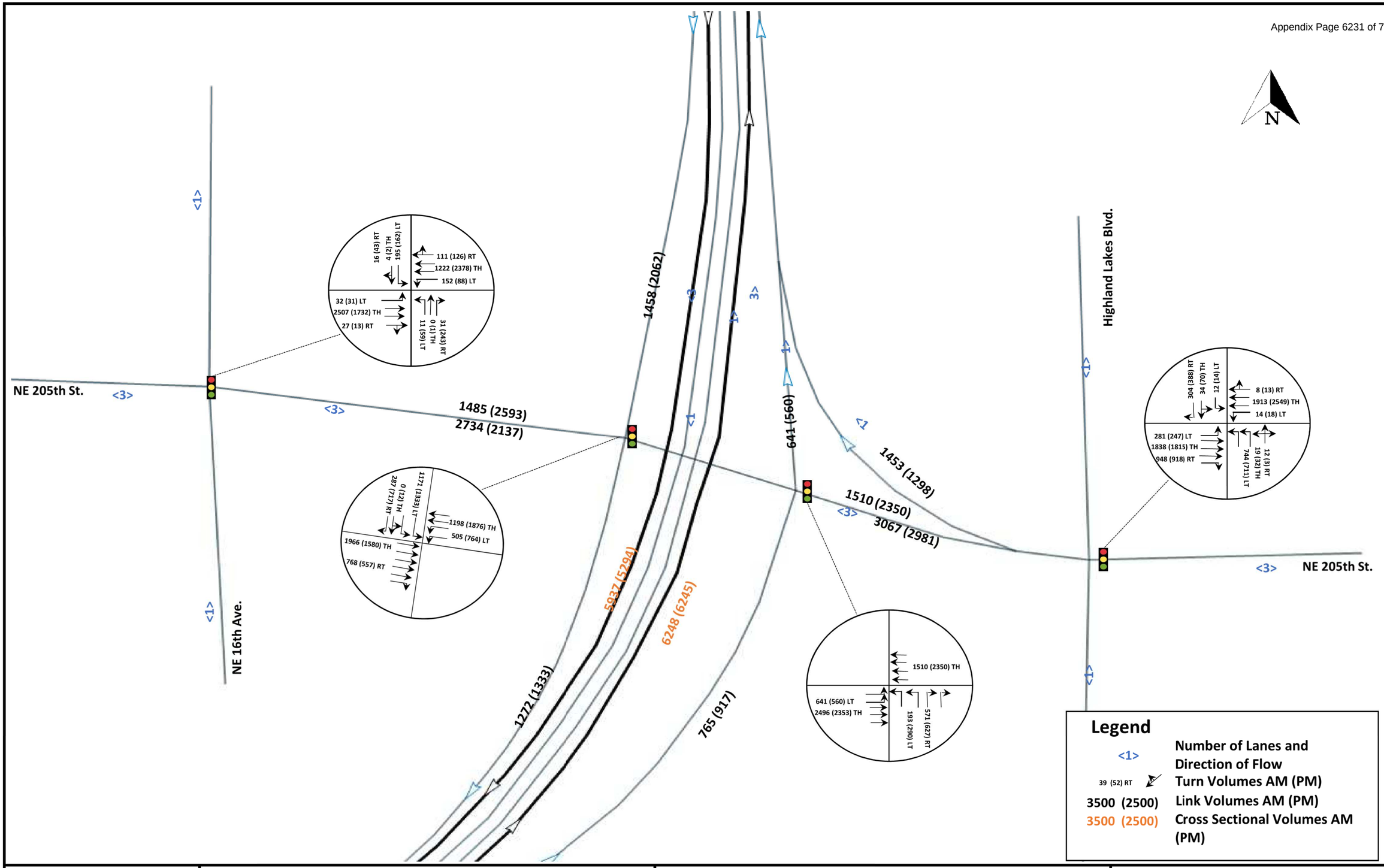
	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 20 / 23**



	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 21 / 23**

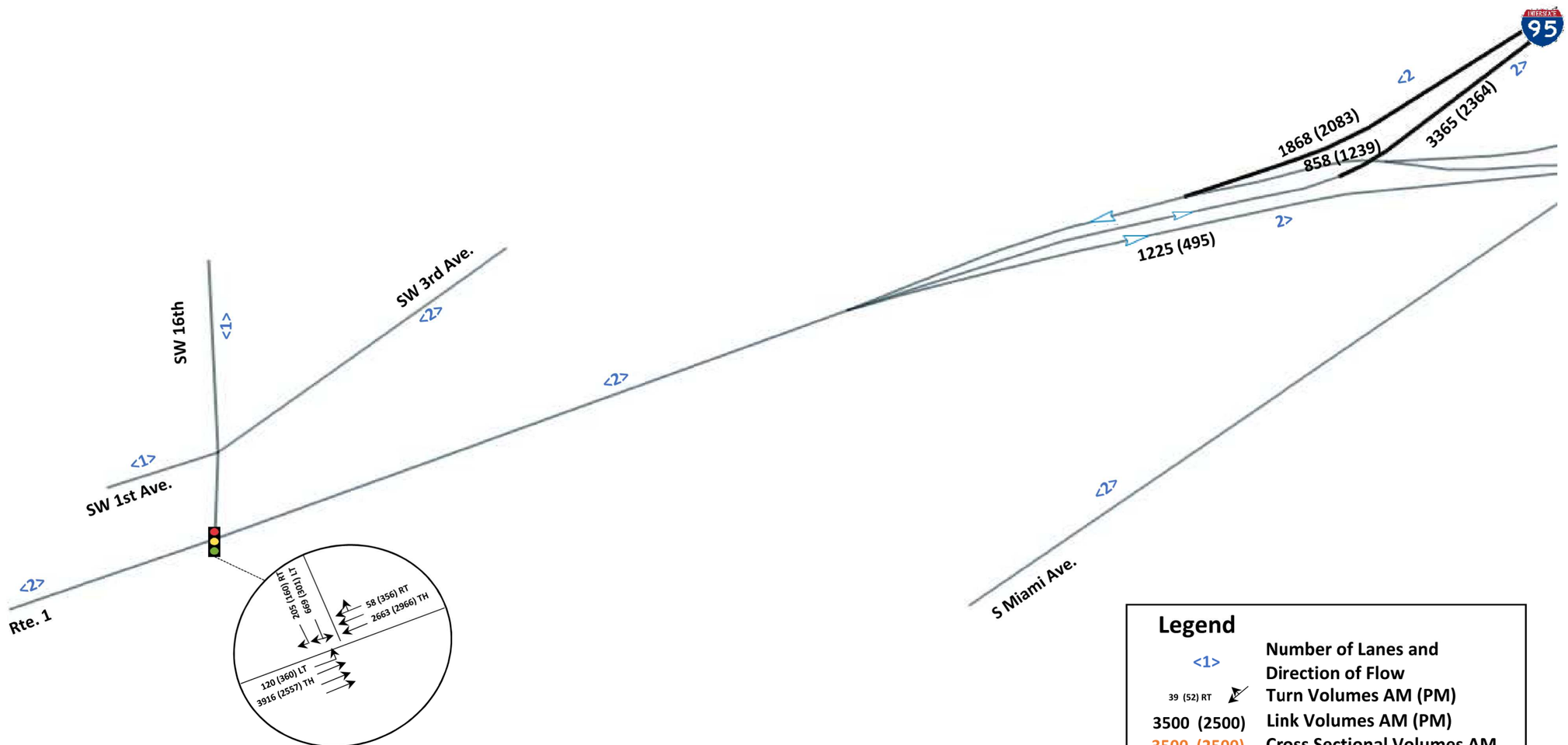


	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 22 / 23**

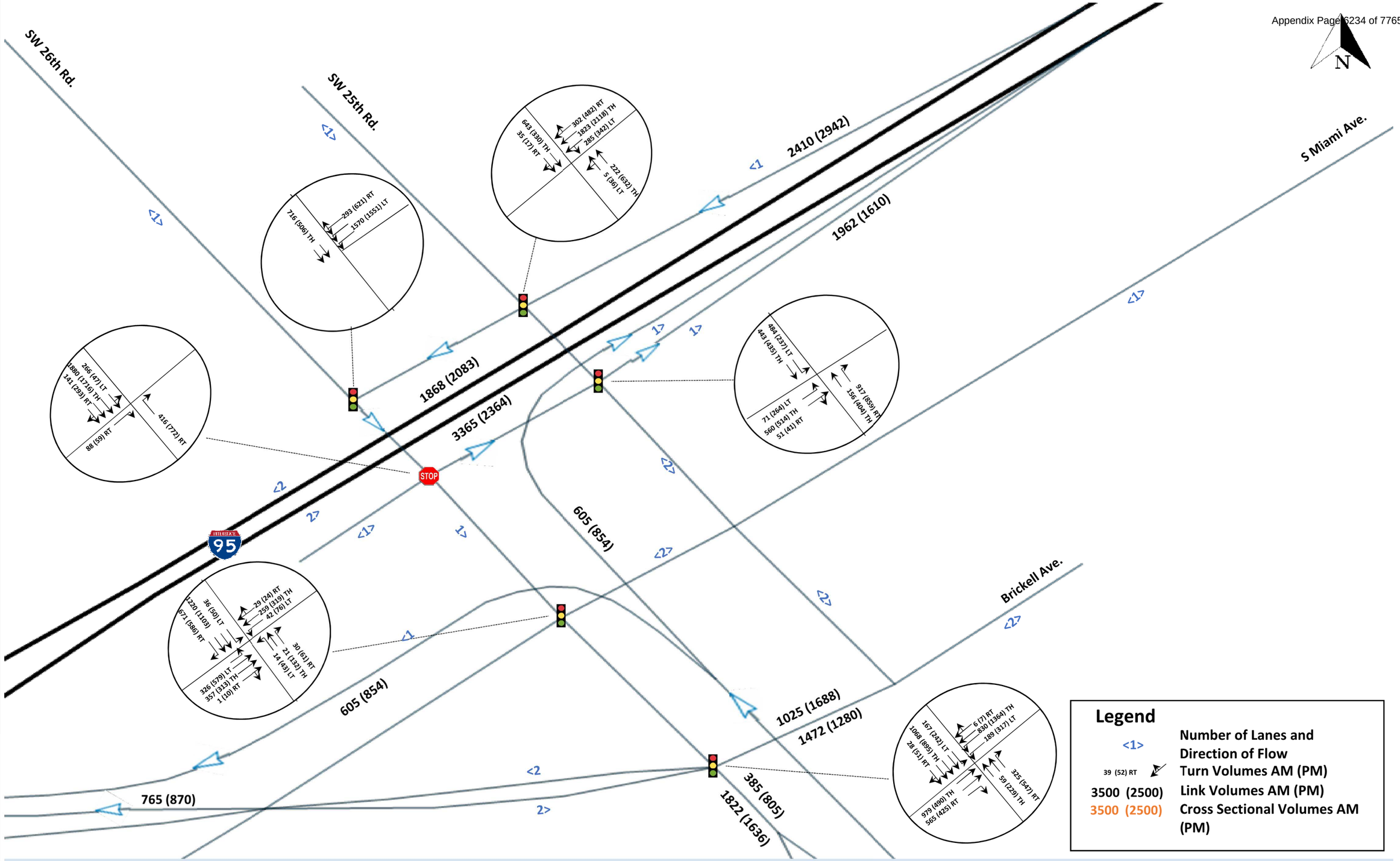


	I-95 CPS No Build (2025)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 23 / 23**

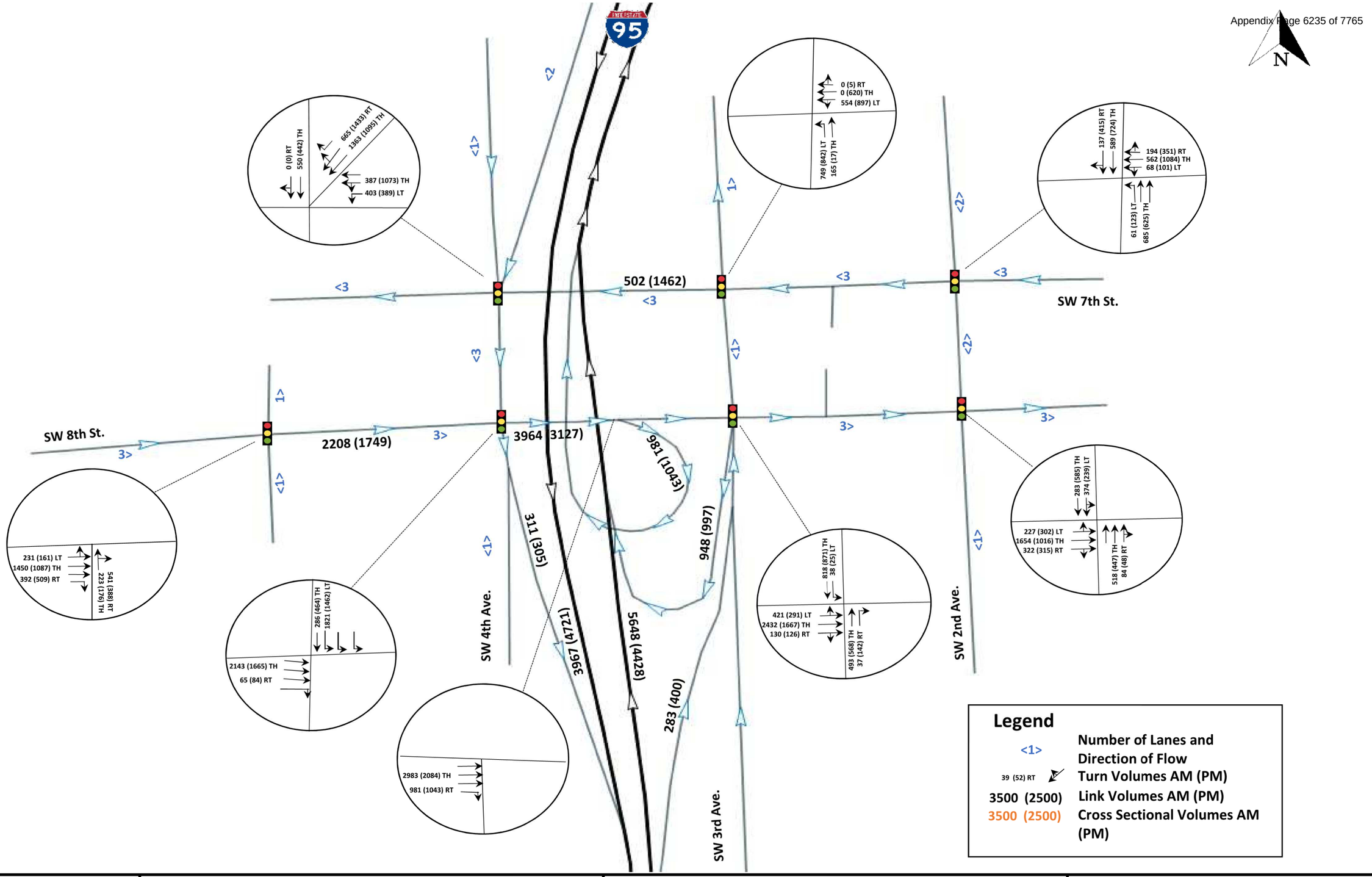
Appendix D. I-95 CPS No Build (2045)



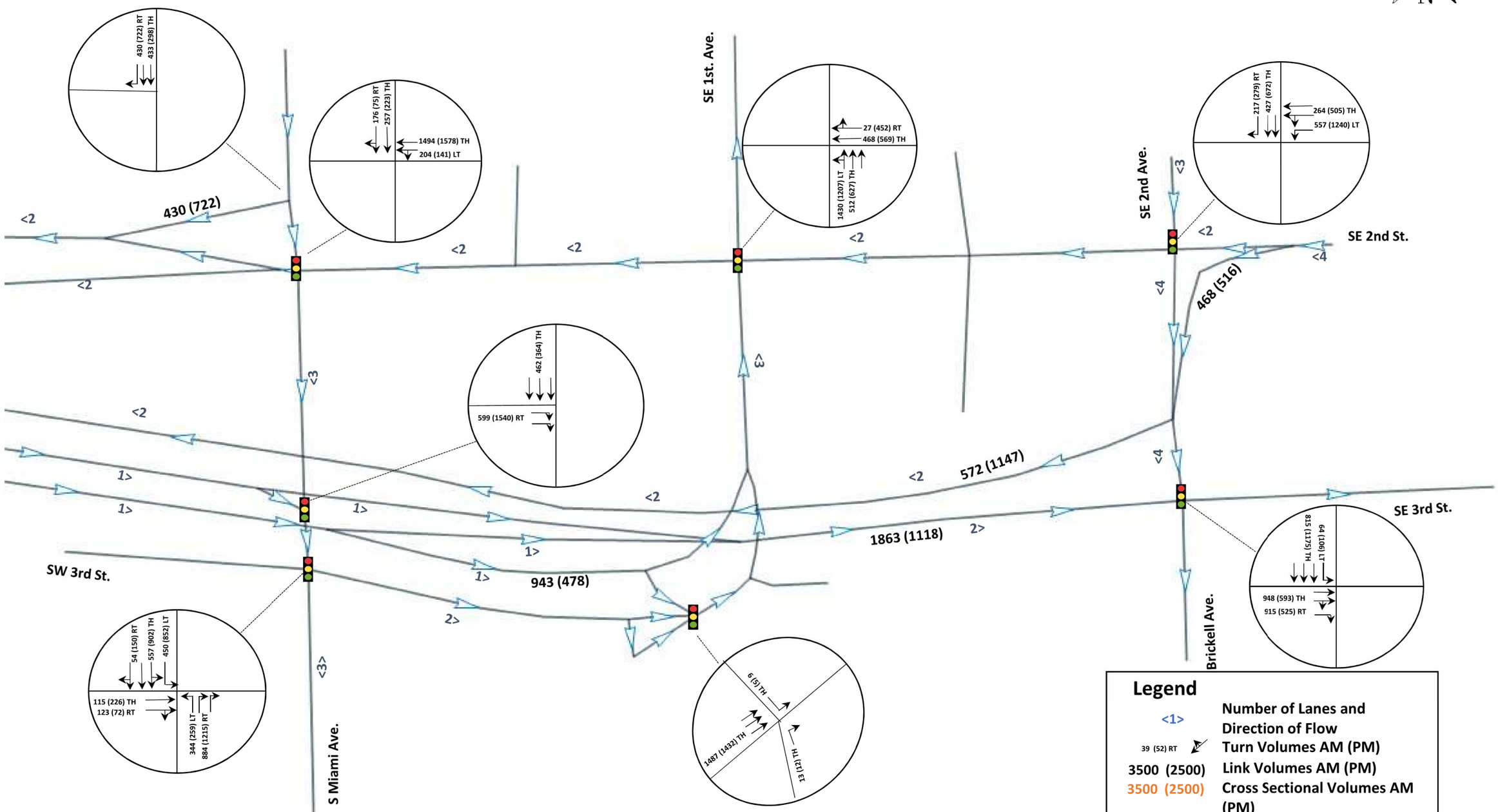
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 1 / 23**



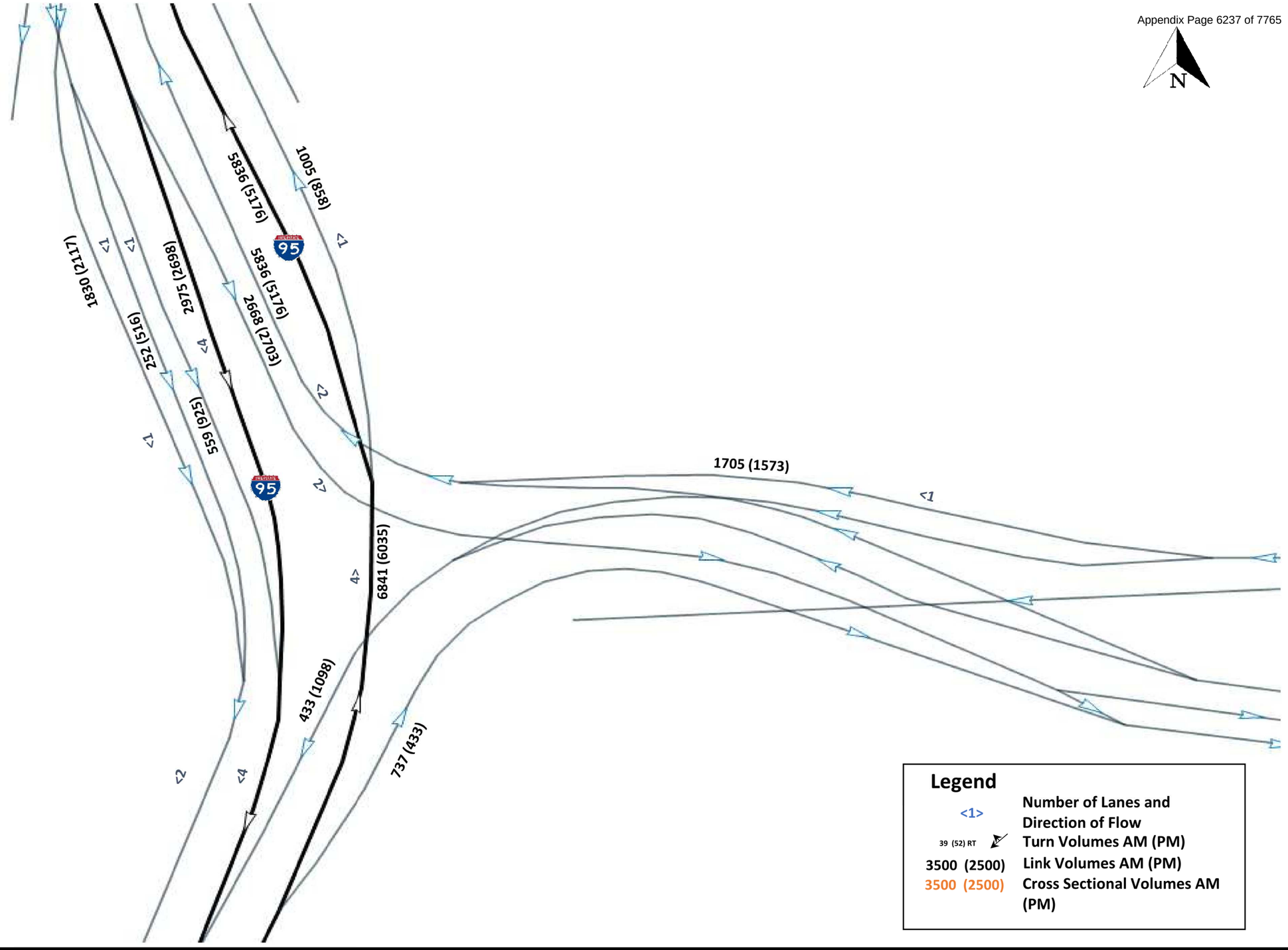
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 2 / 23**



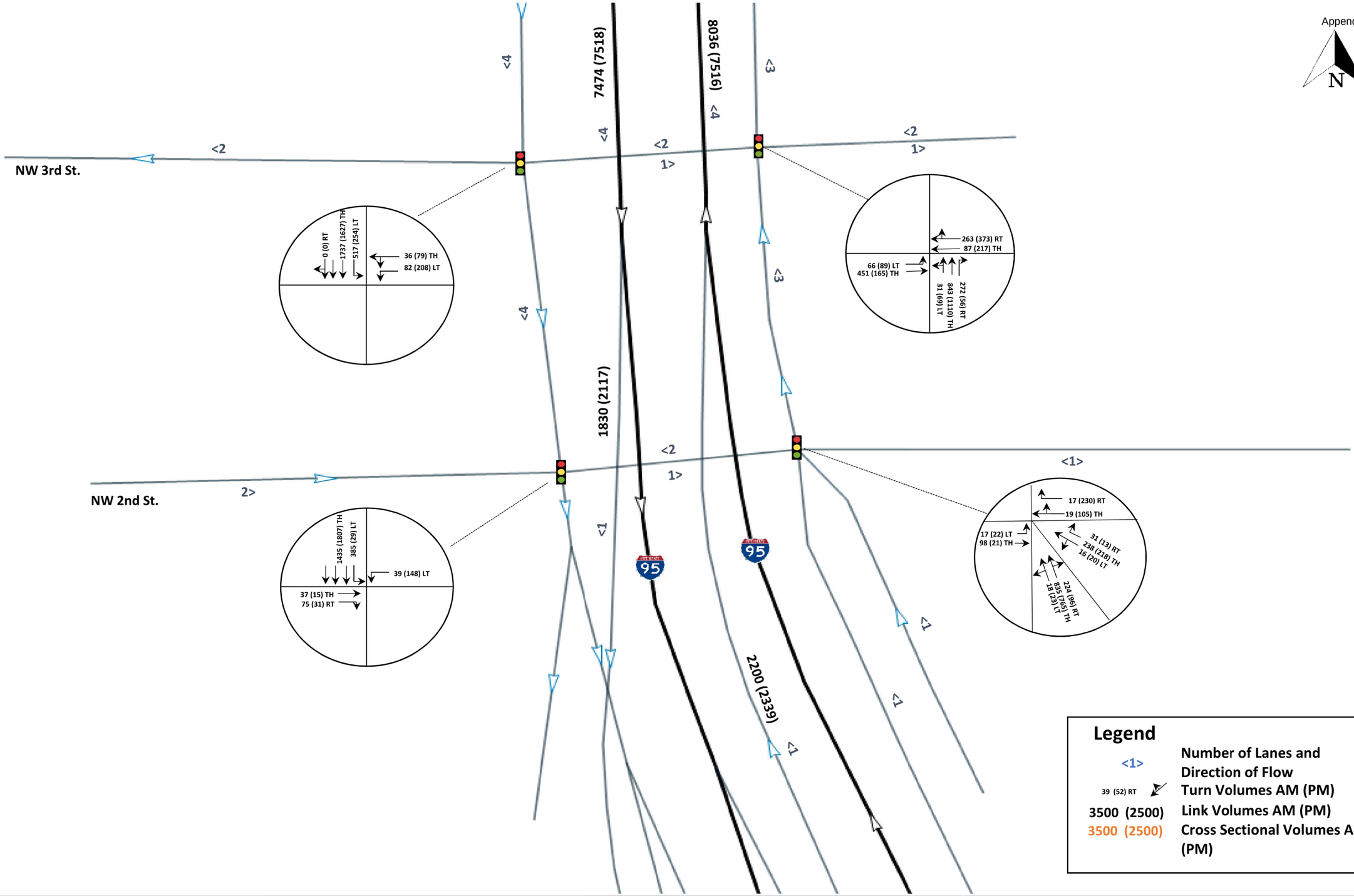
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 3 / 23**



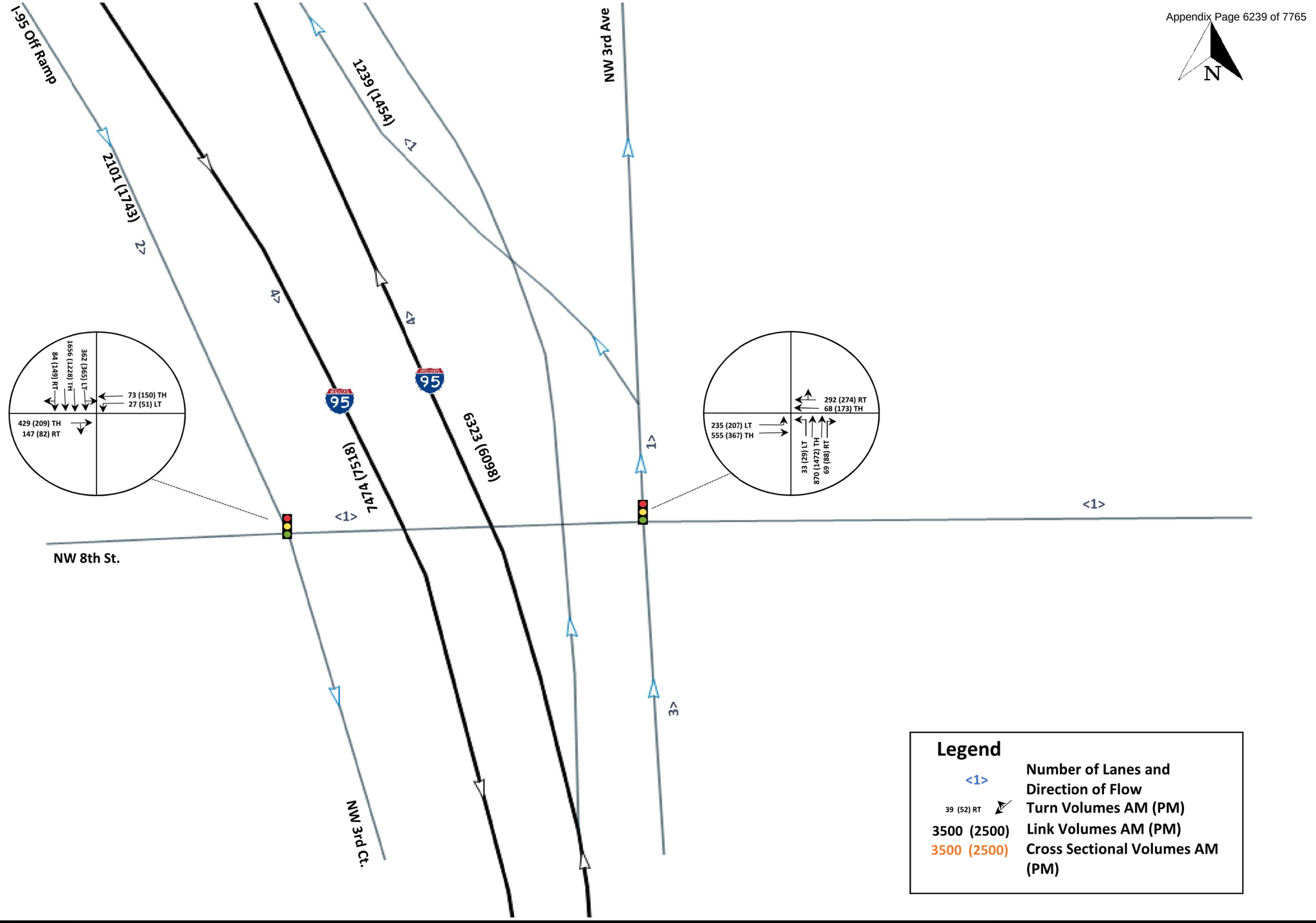
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 4 / 23**



	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 5 / 23**



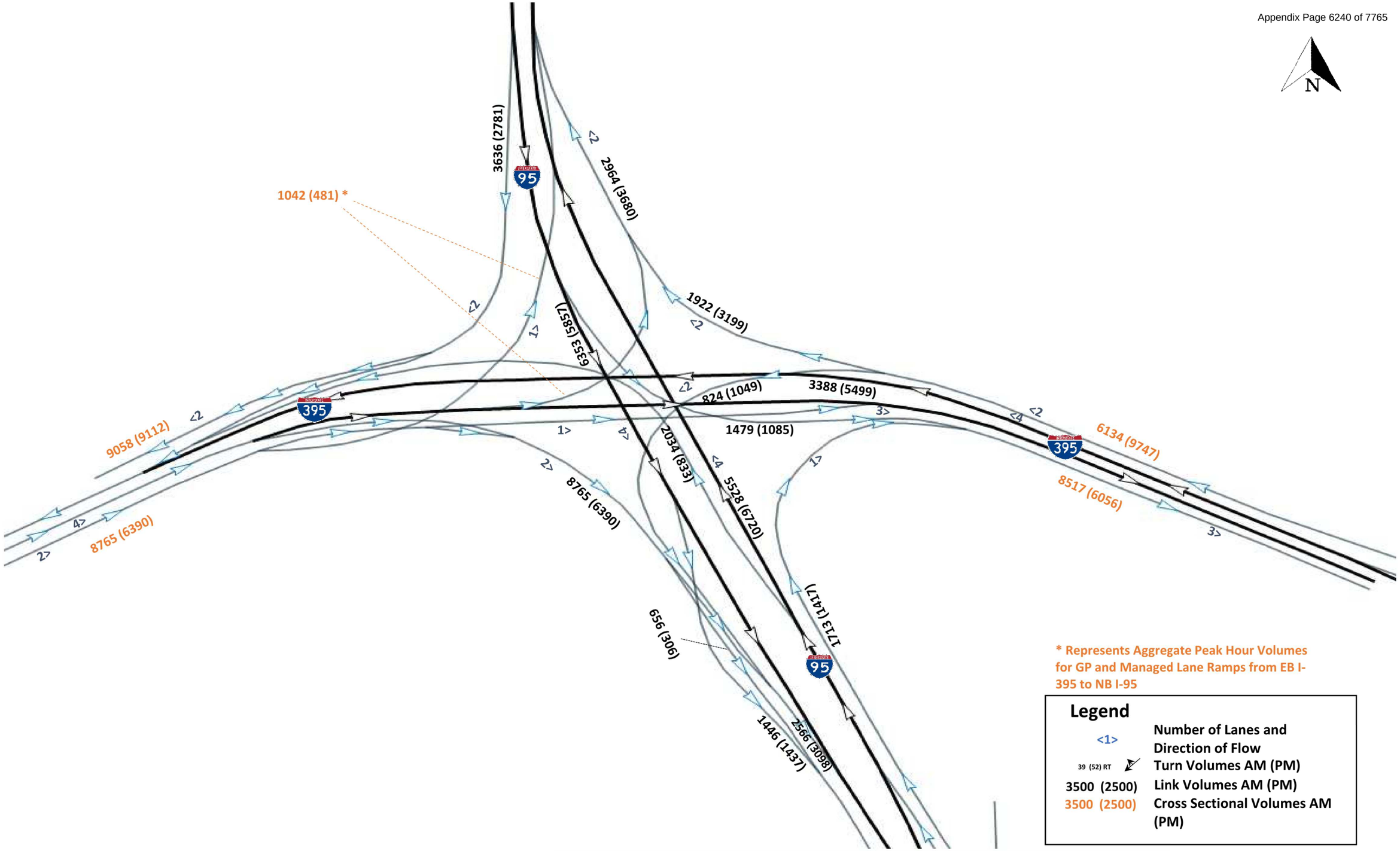
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 6 / 23**



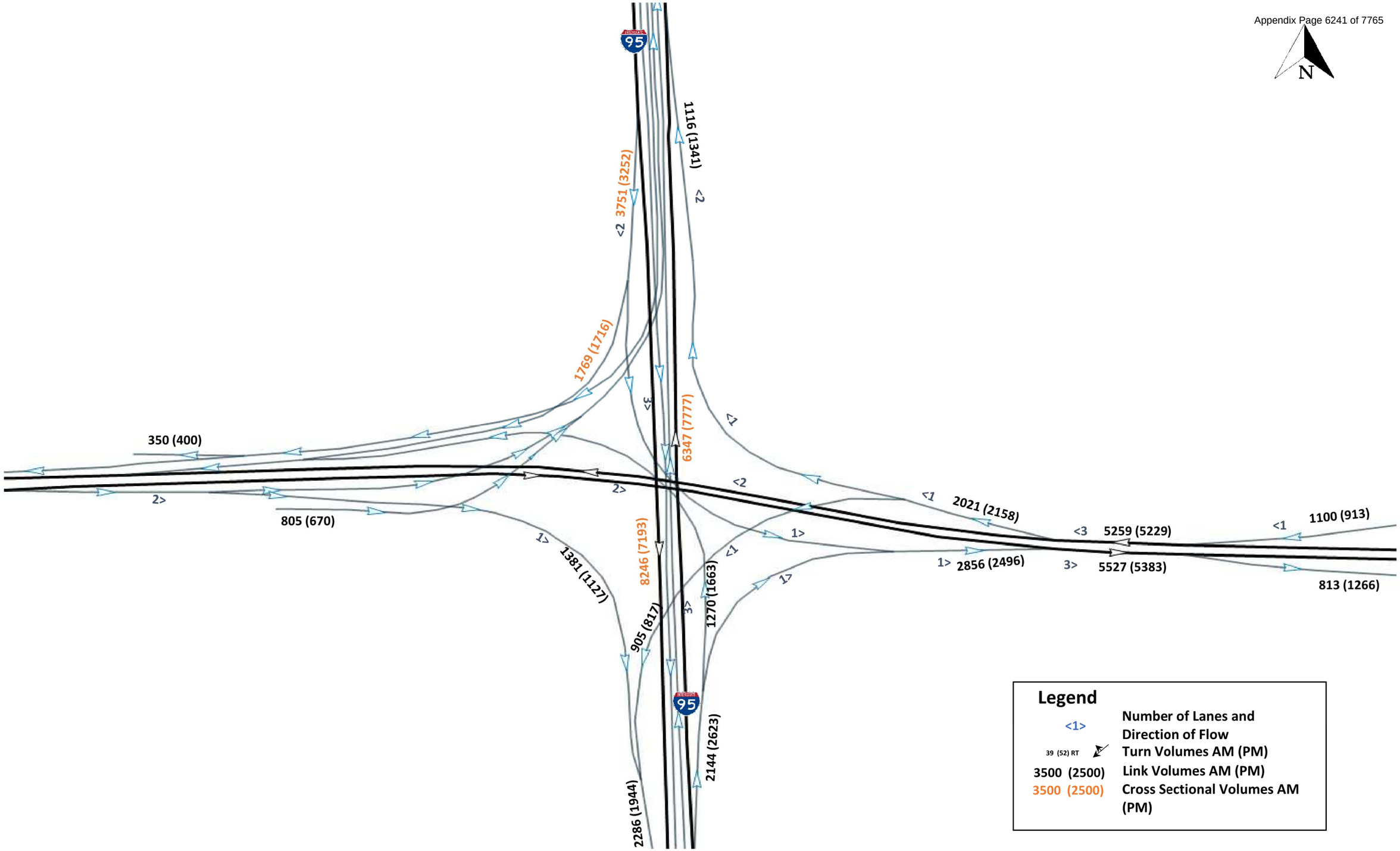
Legend

<1>	Number of Lanes and Direction of Flow
39 (52) RT	Turn Volumes AM (PM)
3500 (2500)	Link Volumes AM (PM)
3500 (2500)	Cross Sectional Volumes AM (PM)

	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 7 / 23**



	I-95 CPS No Build (2045)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 8 / 23



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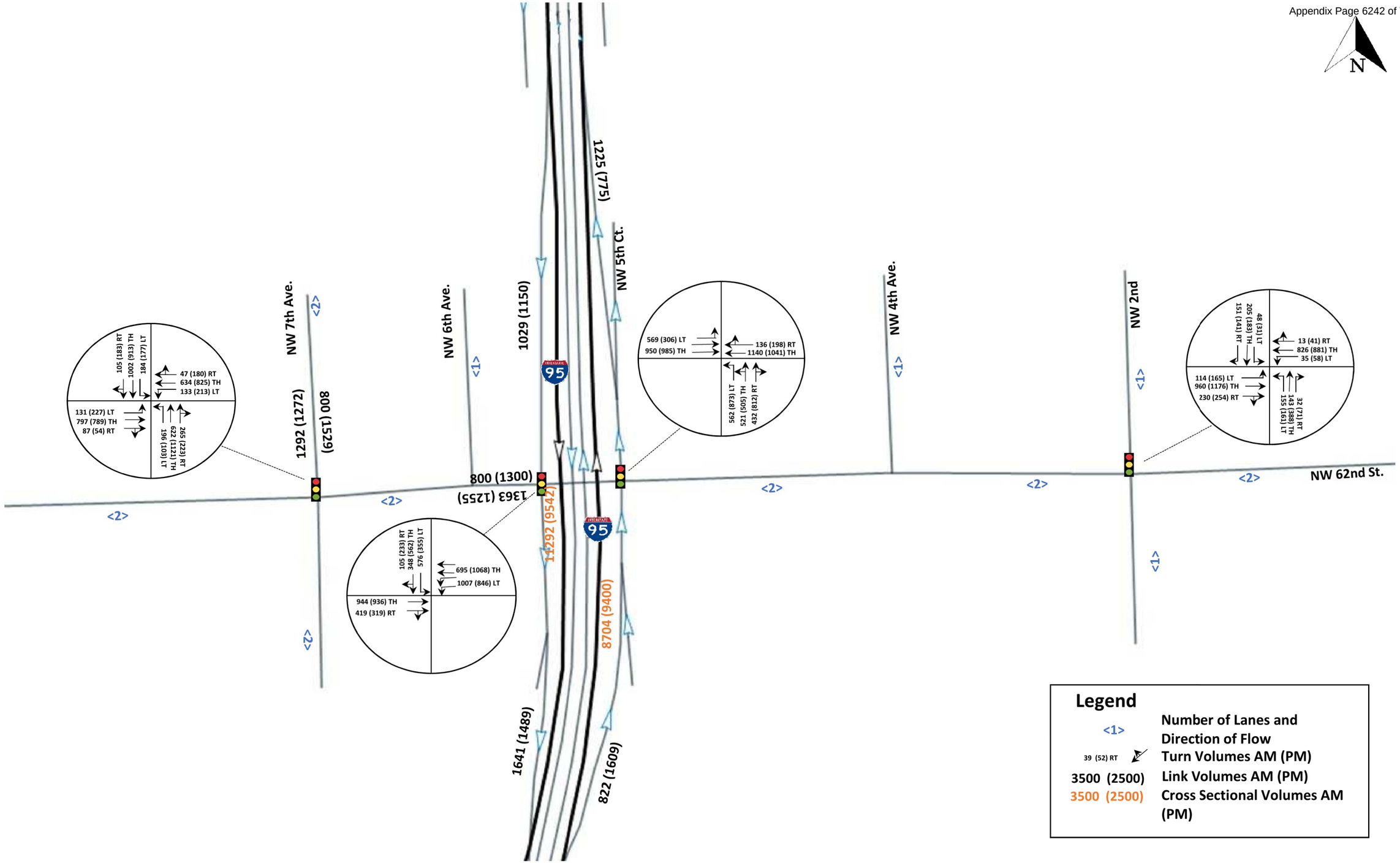
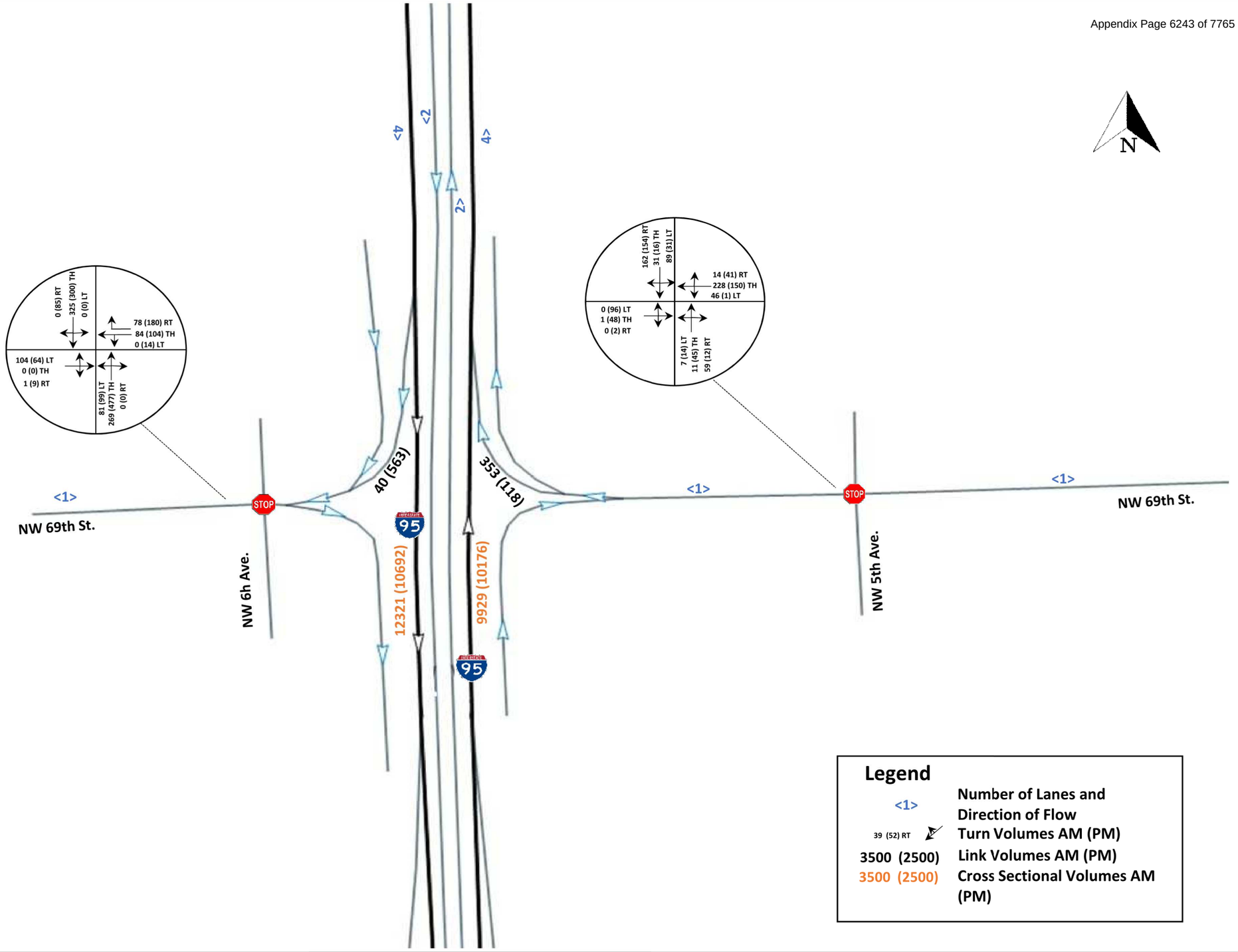


	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 10 / 23**



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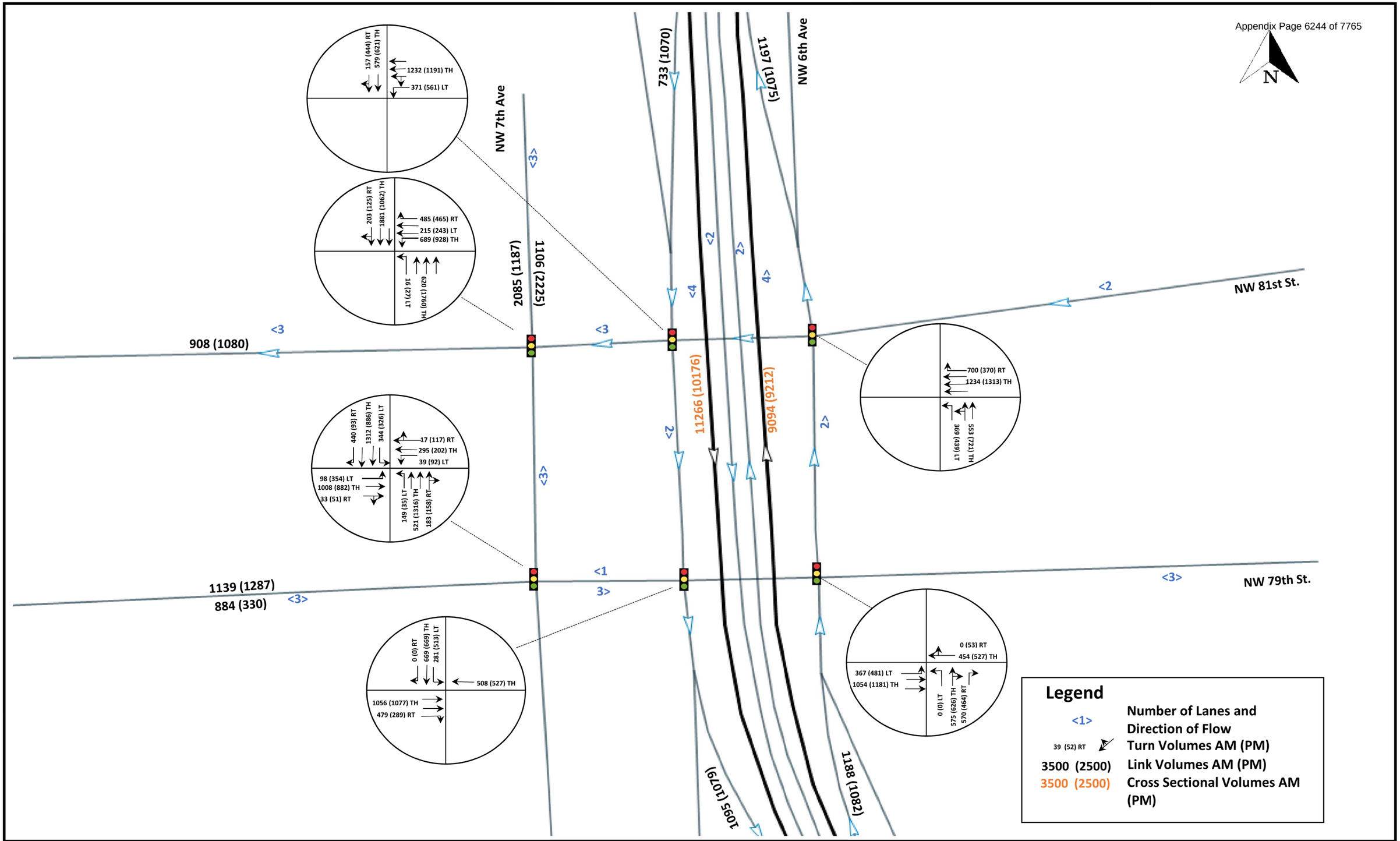
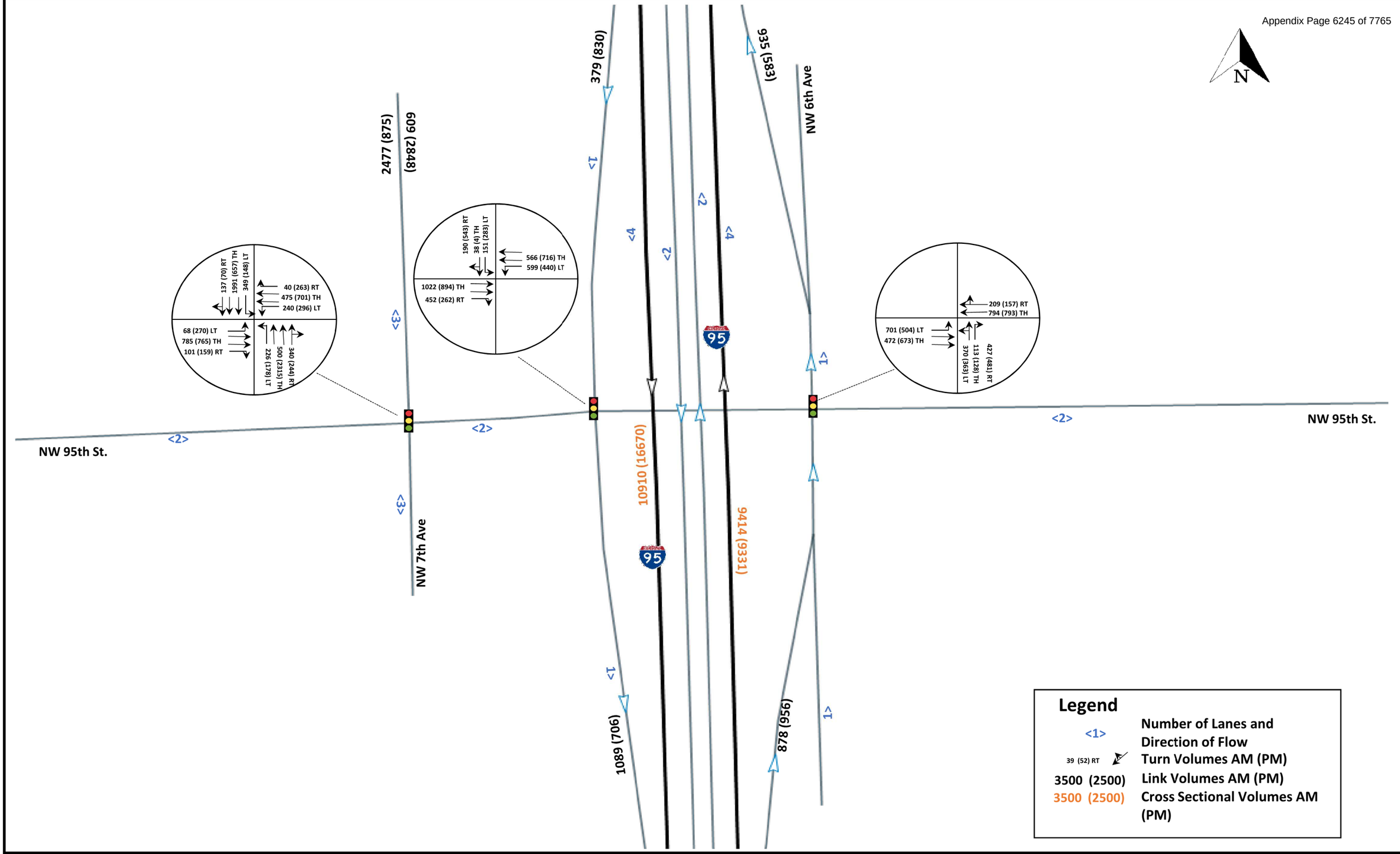


	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 12 / 23**



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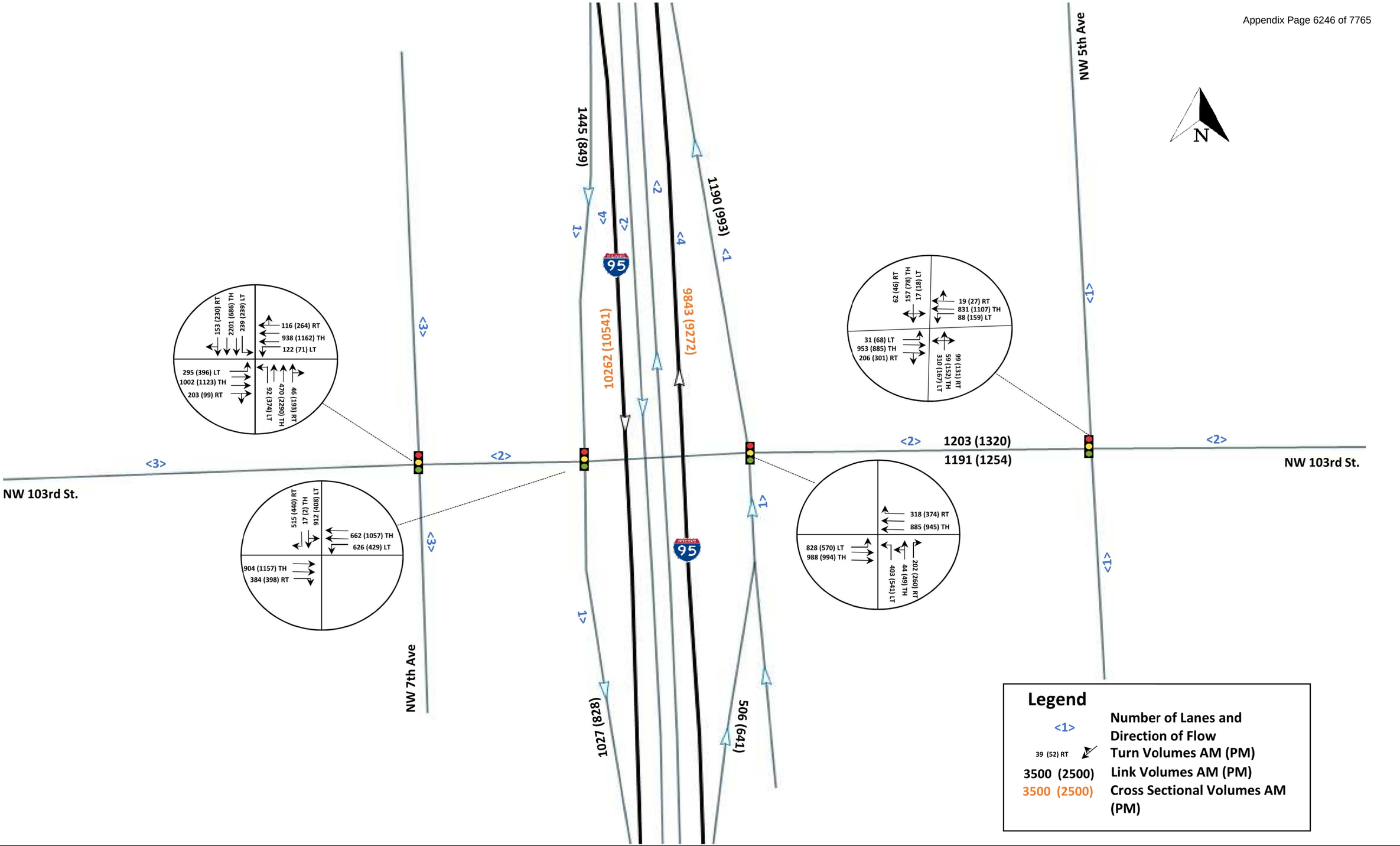
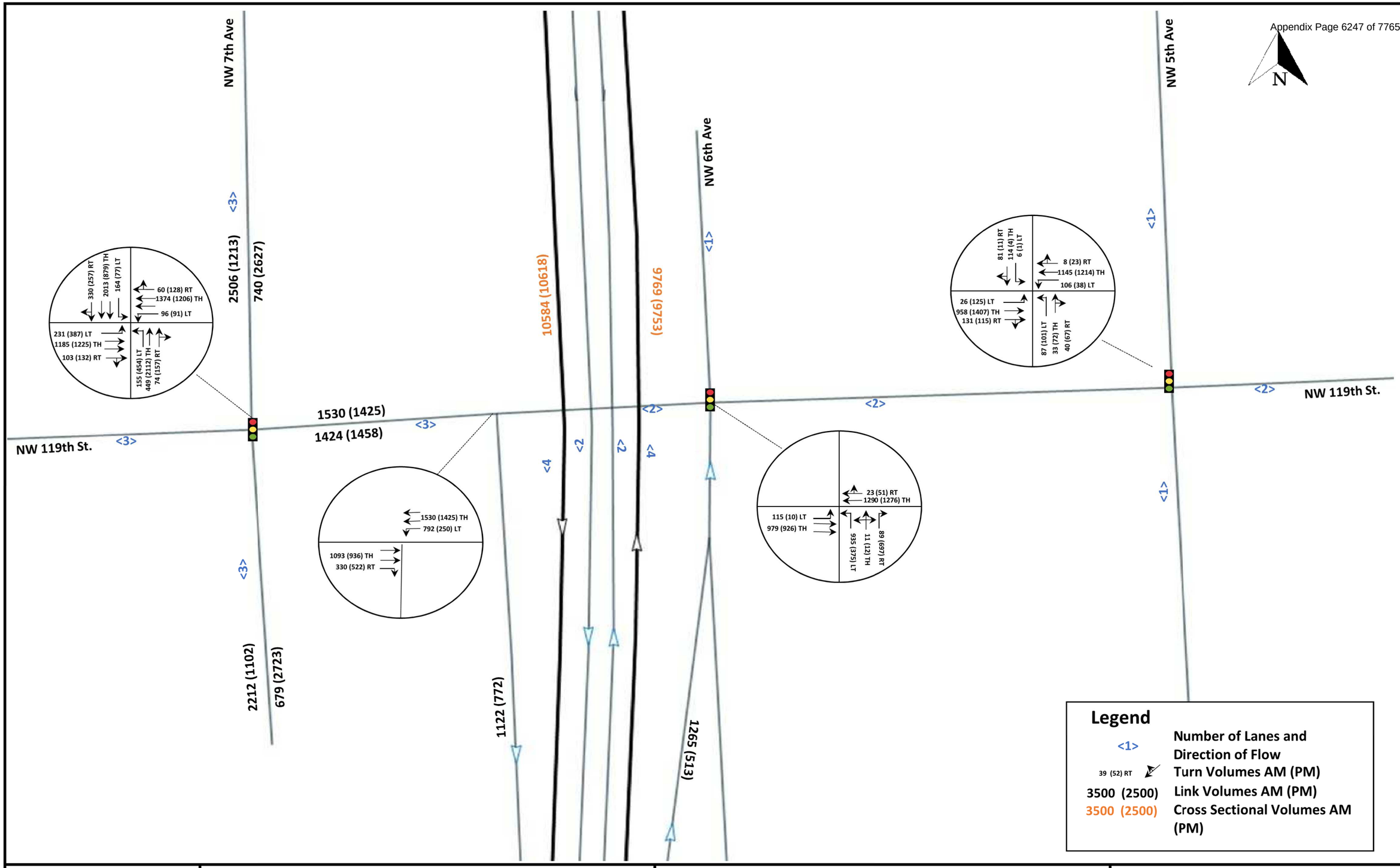
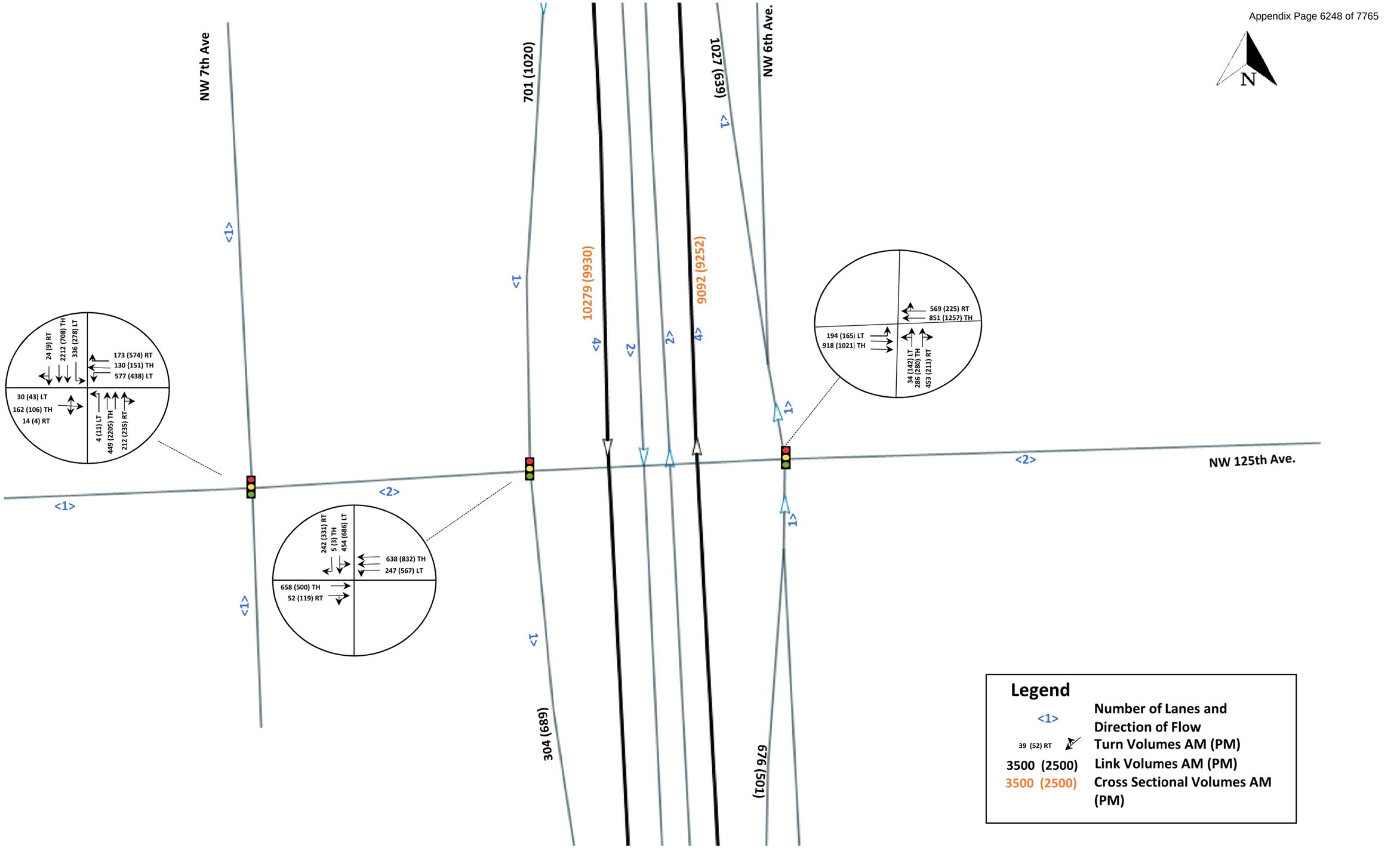


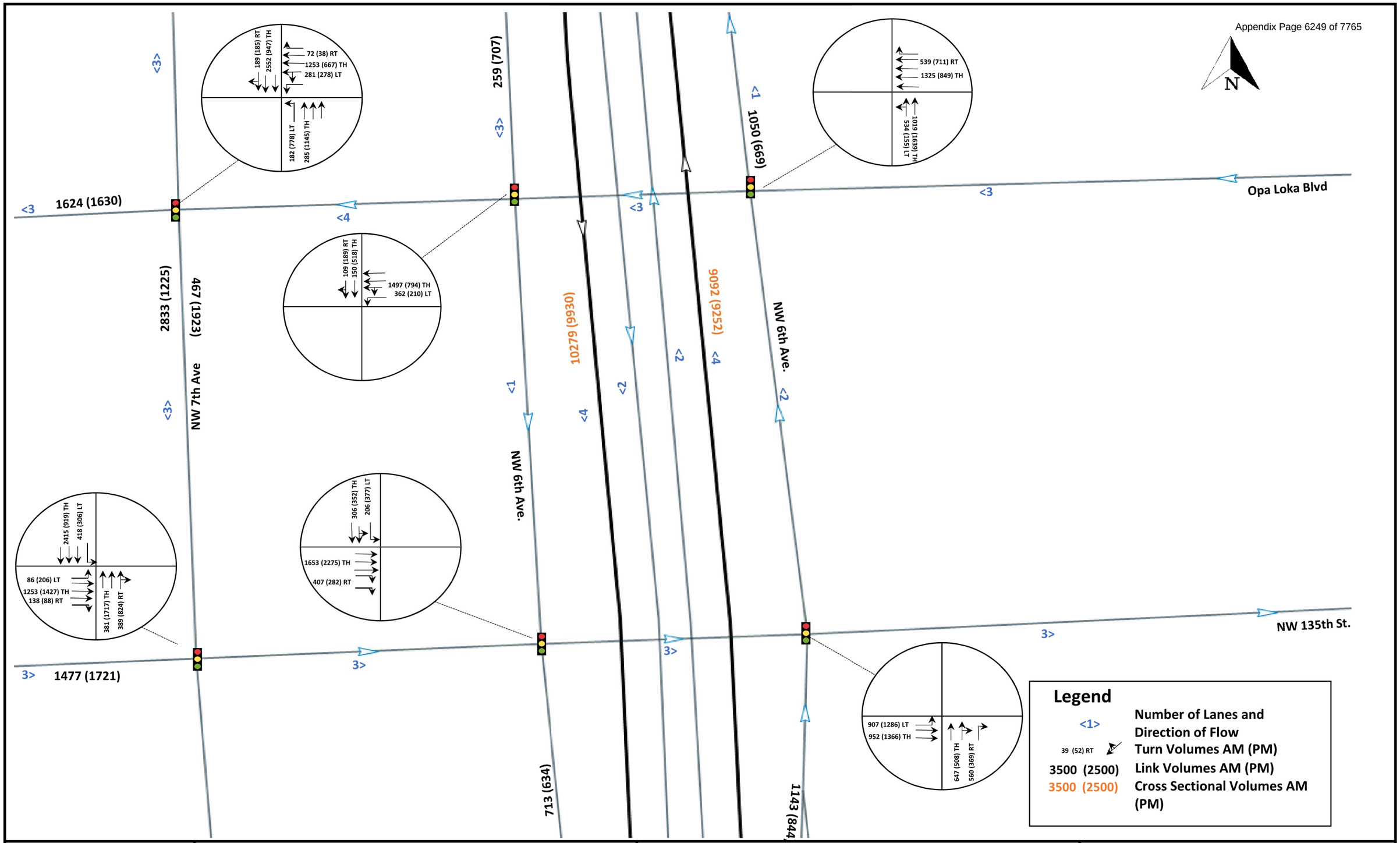
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 14 / 23**



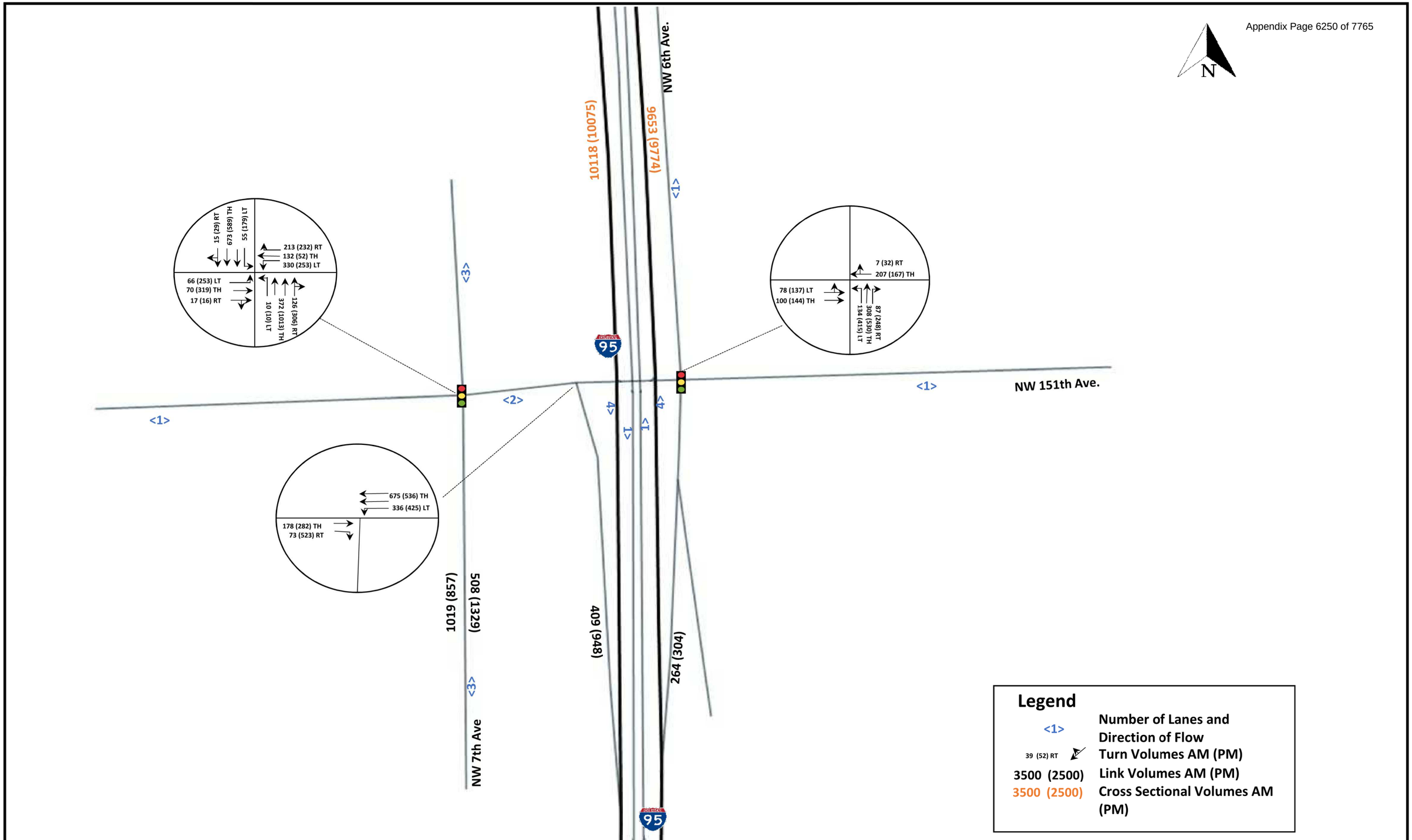
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 15 / 23**



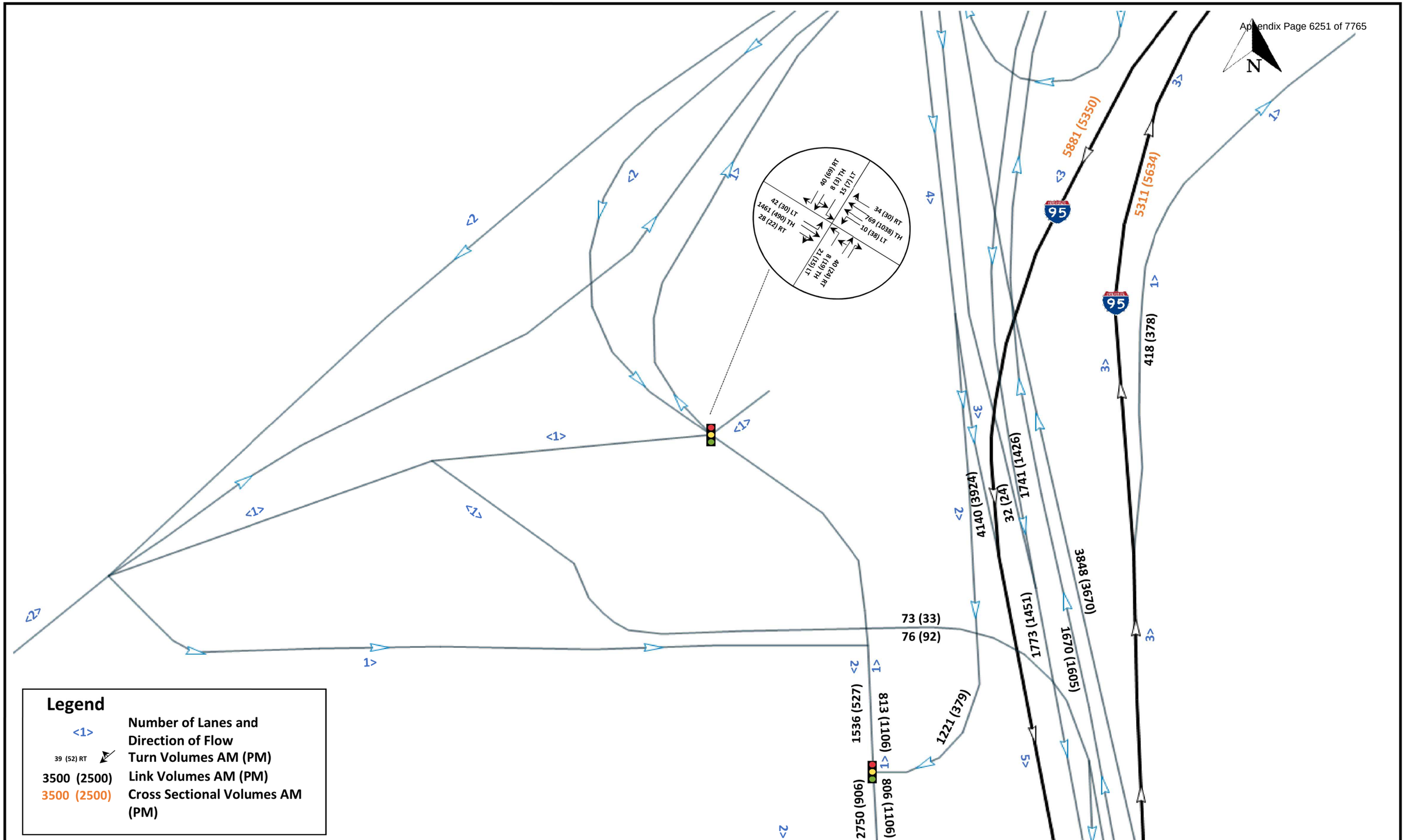
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 16 / 23**



	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 17 / 23**

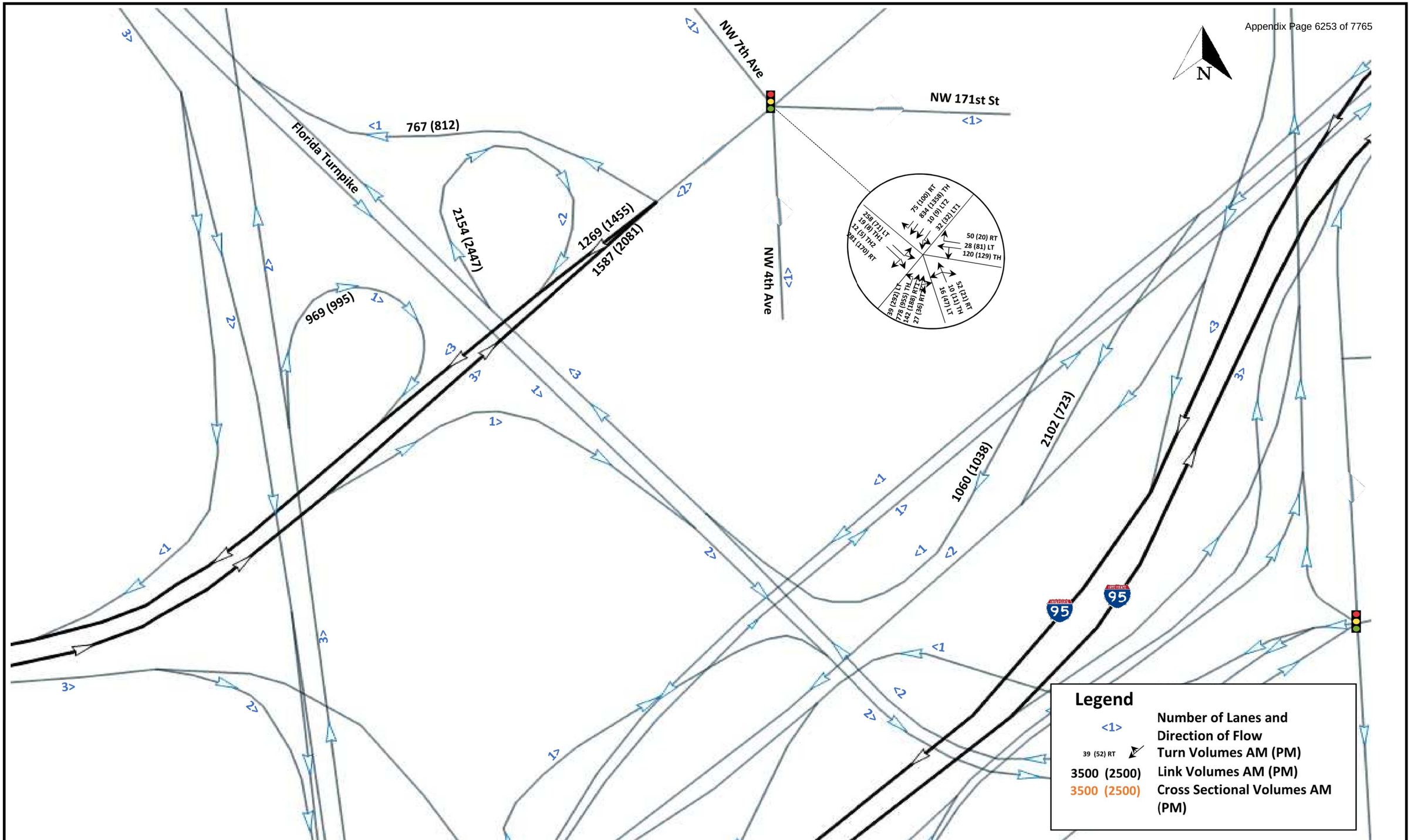


	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 18 / 23**

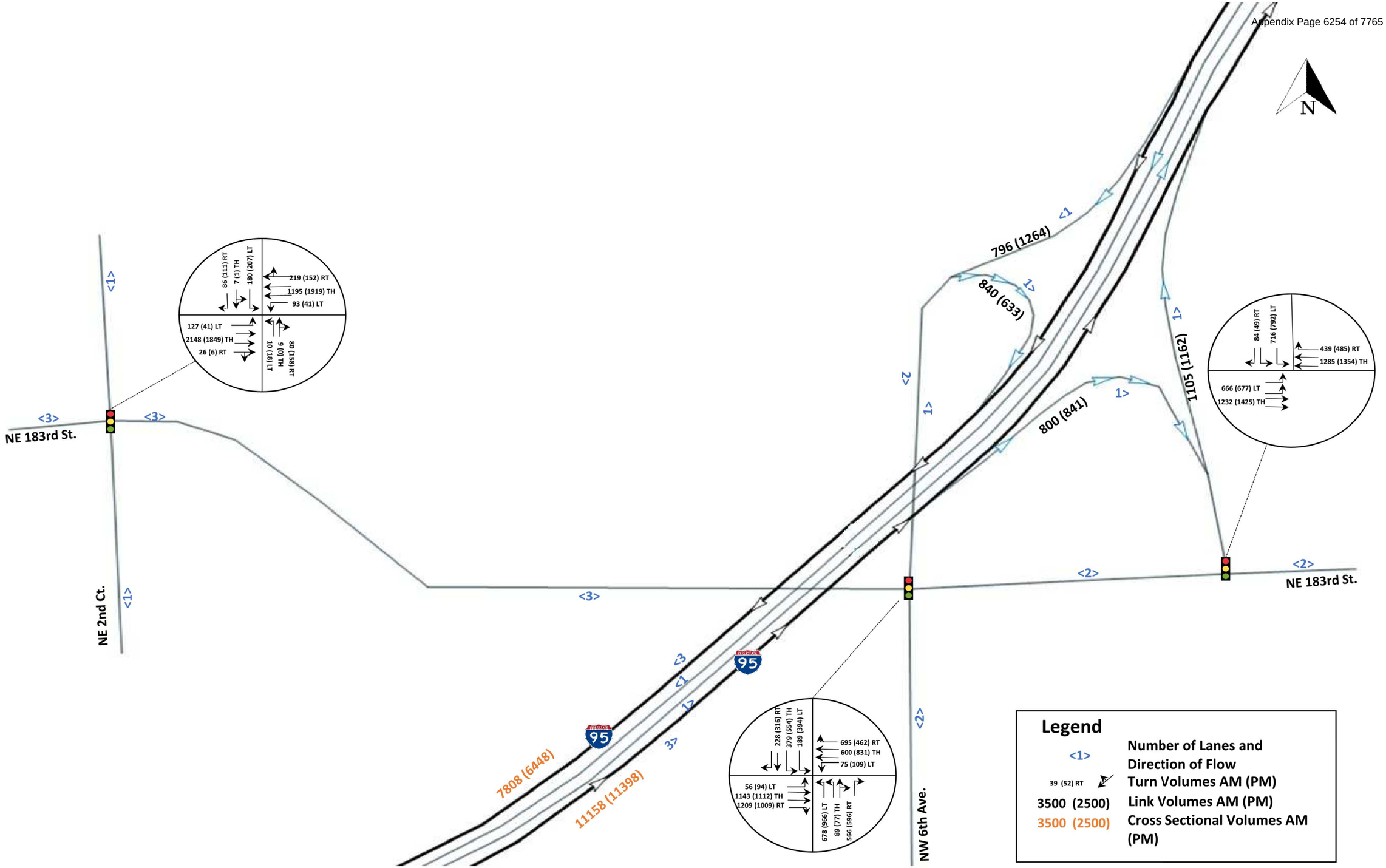


	I-95 CPS No Build (2045)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 19 / 23

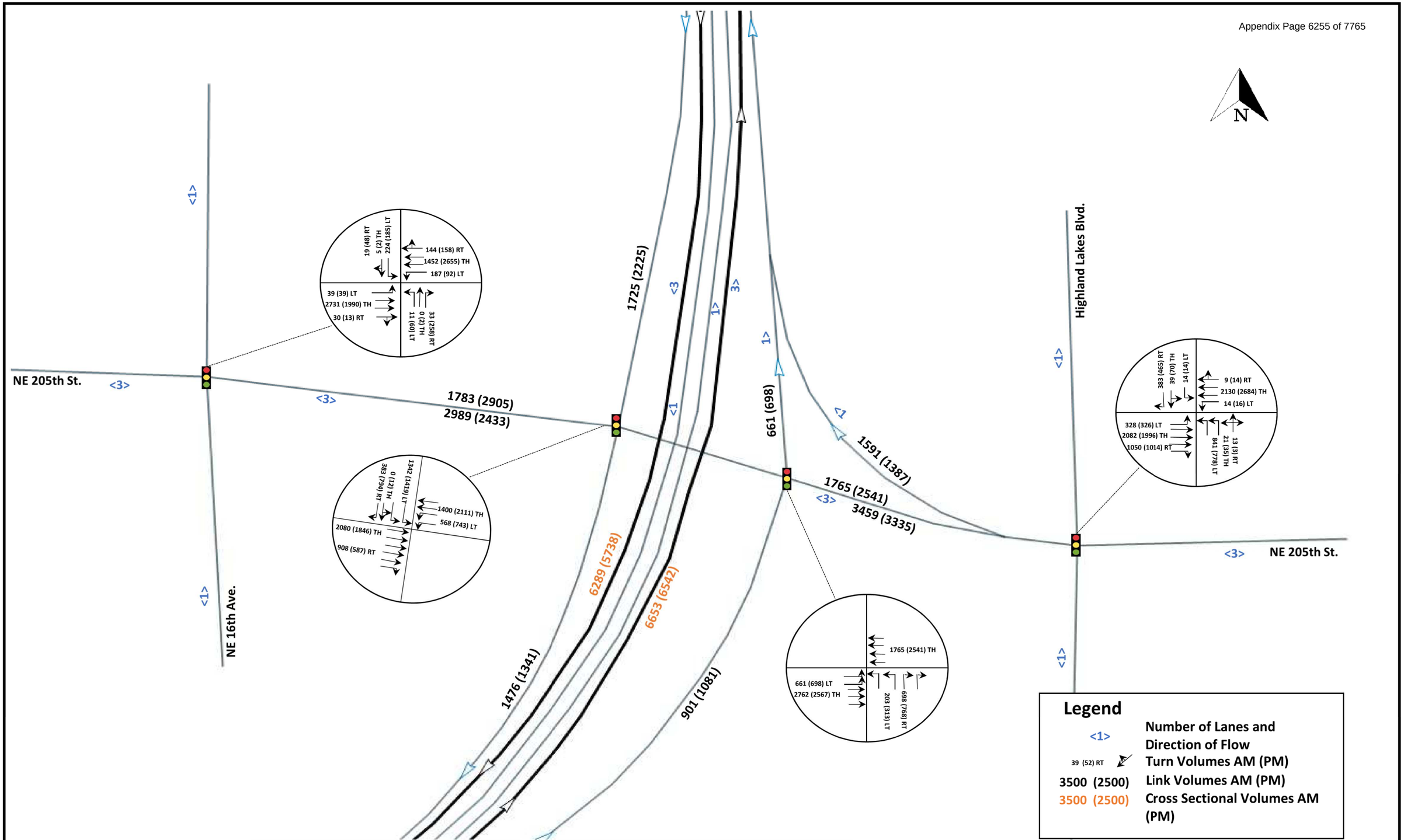
	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 20 / 23**



	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 21 / 23**

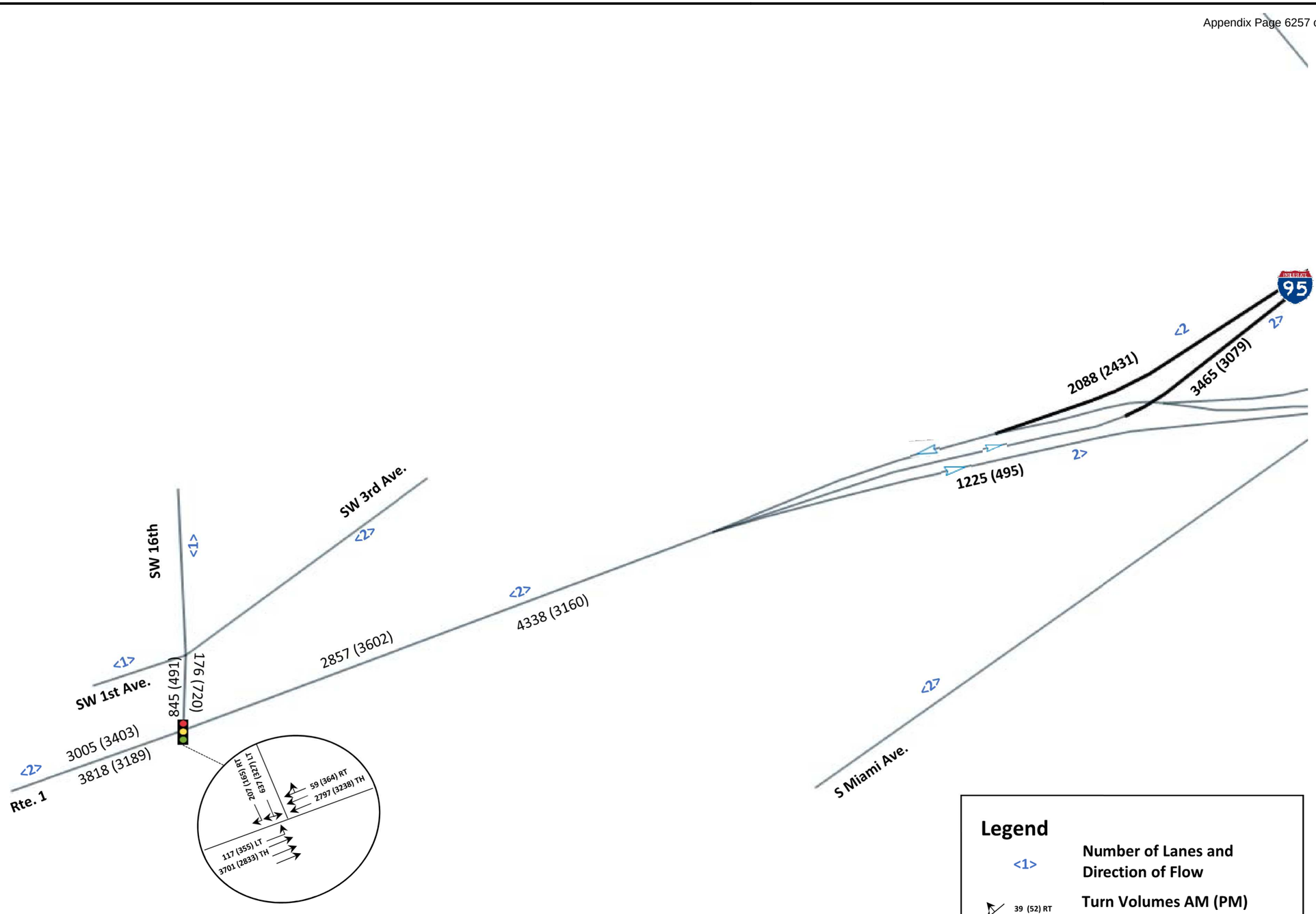


	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 22 / 23**



	I-95 CPS No Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 23 / 23**

Appendix E. I-95 CPS Refined Build Concept (2045)



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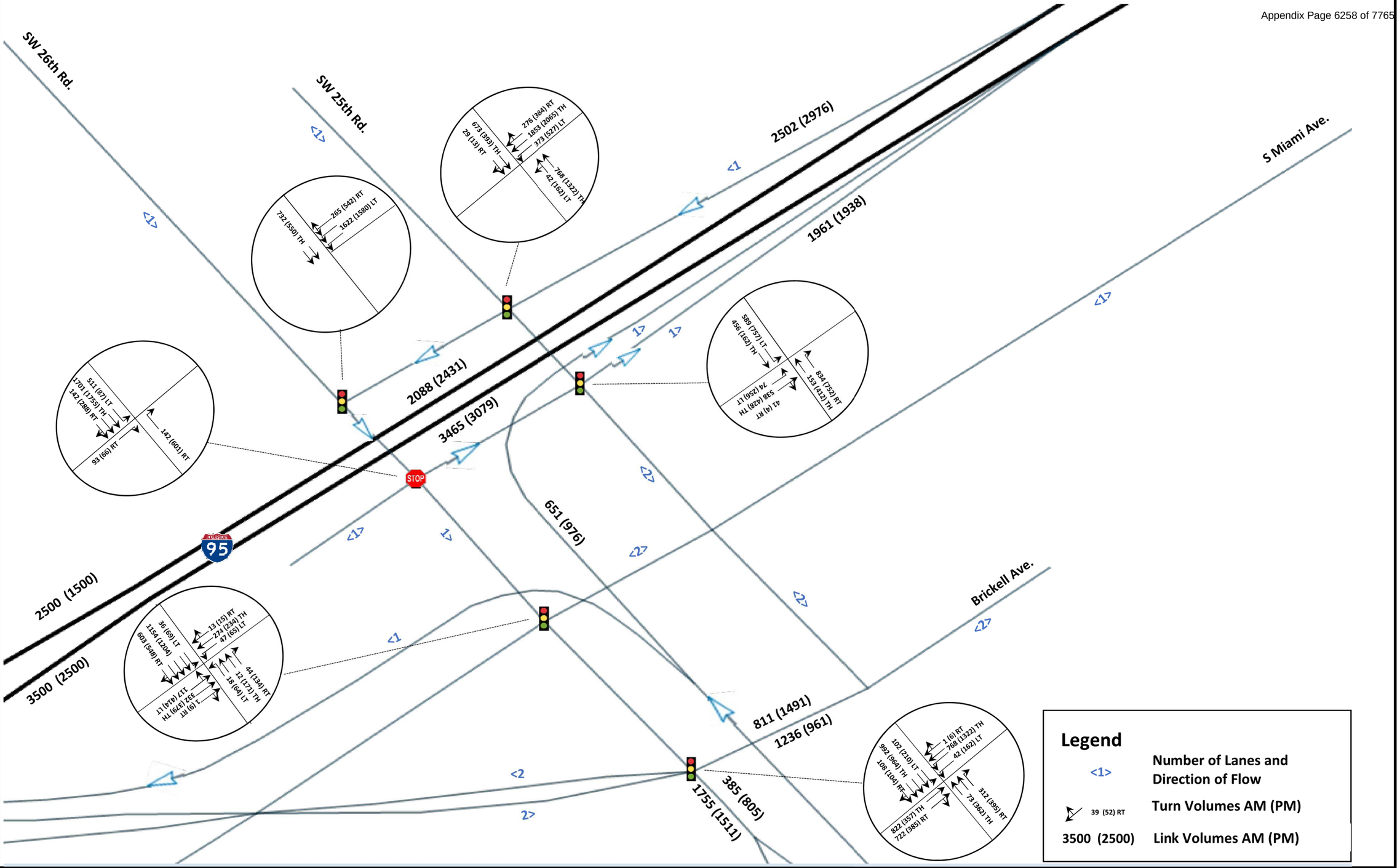

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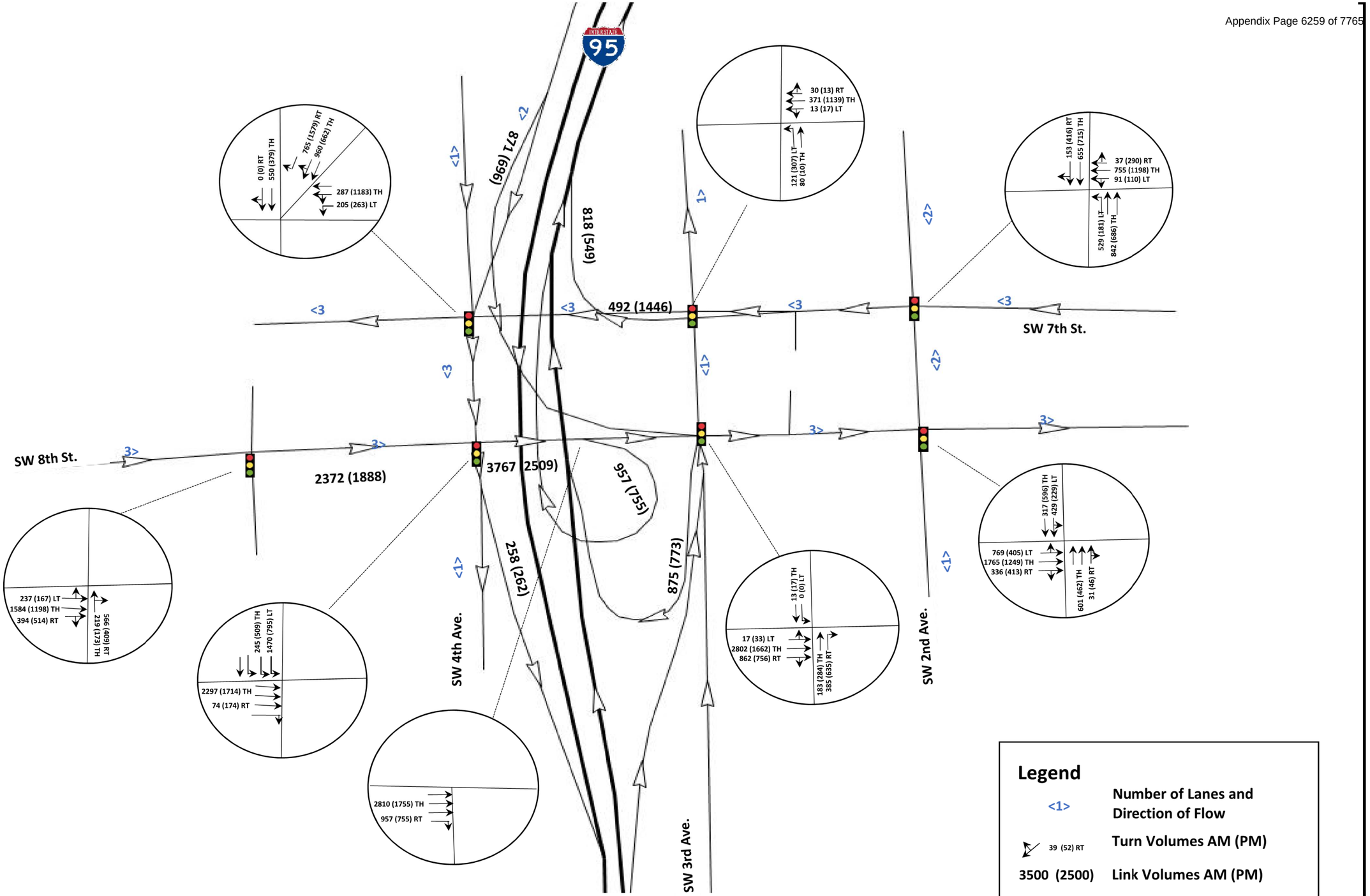
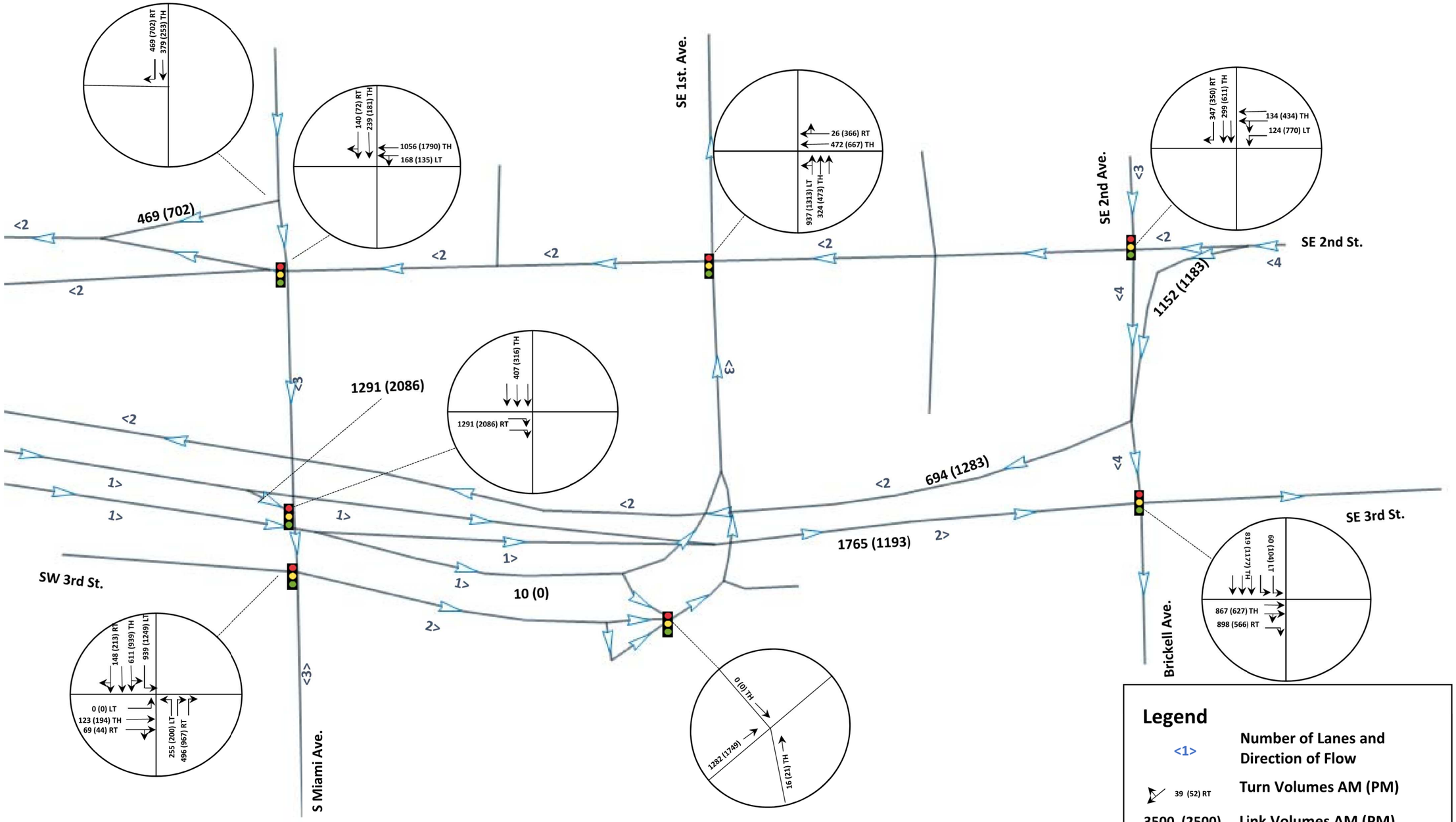
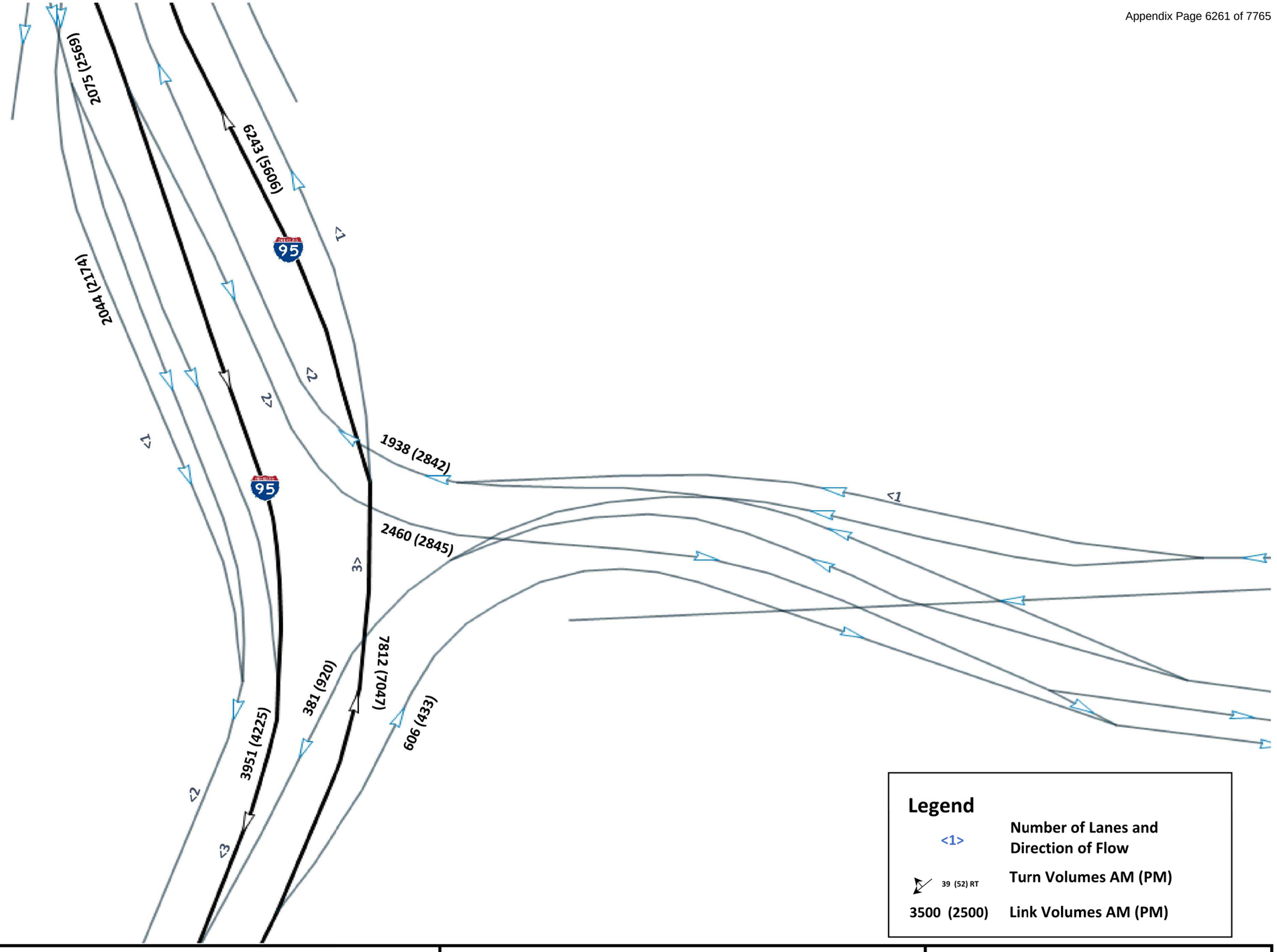


	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 3**



	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 4**



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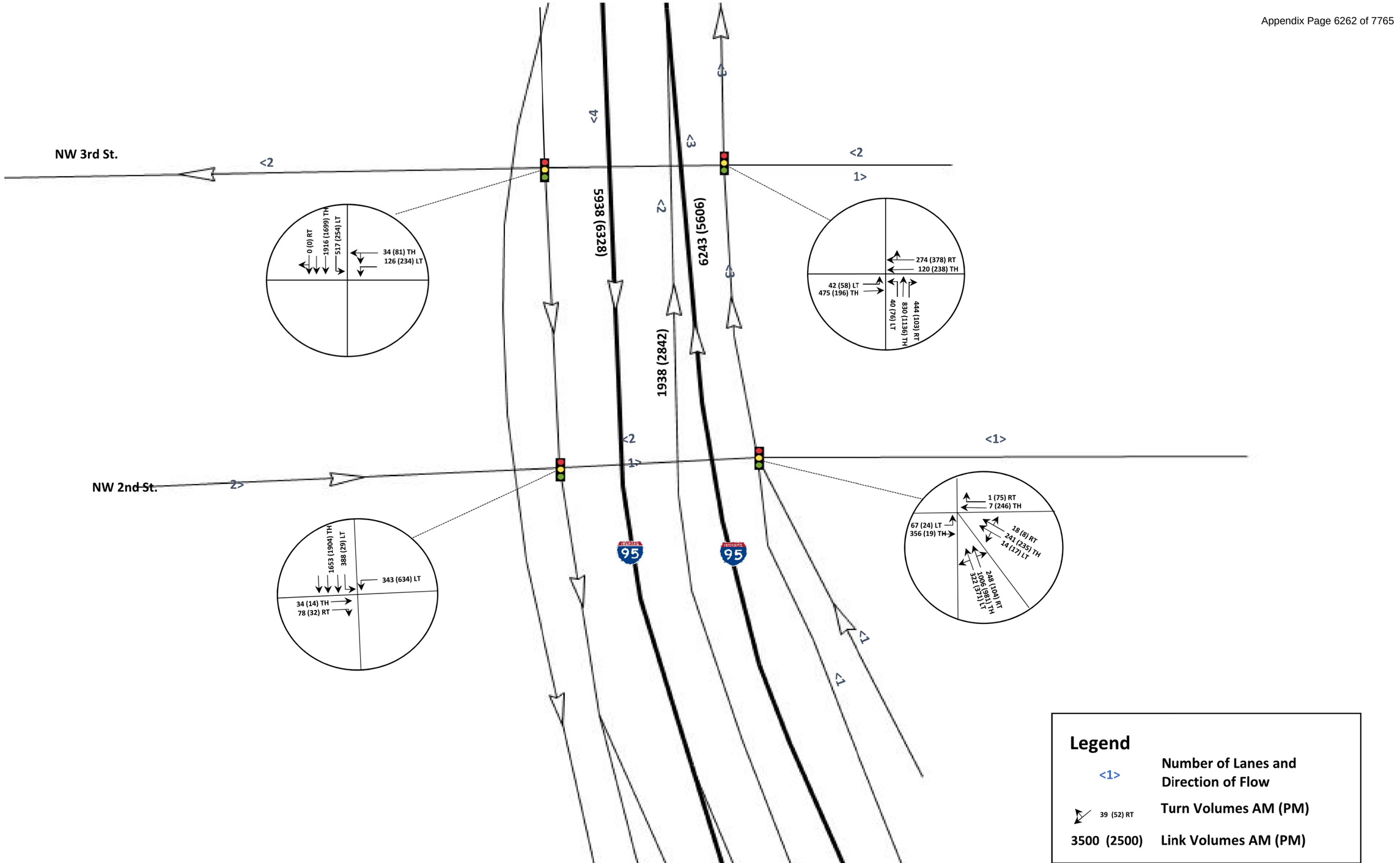

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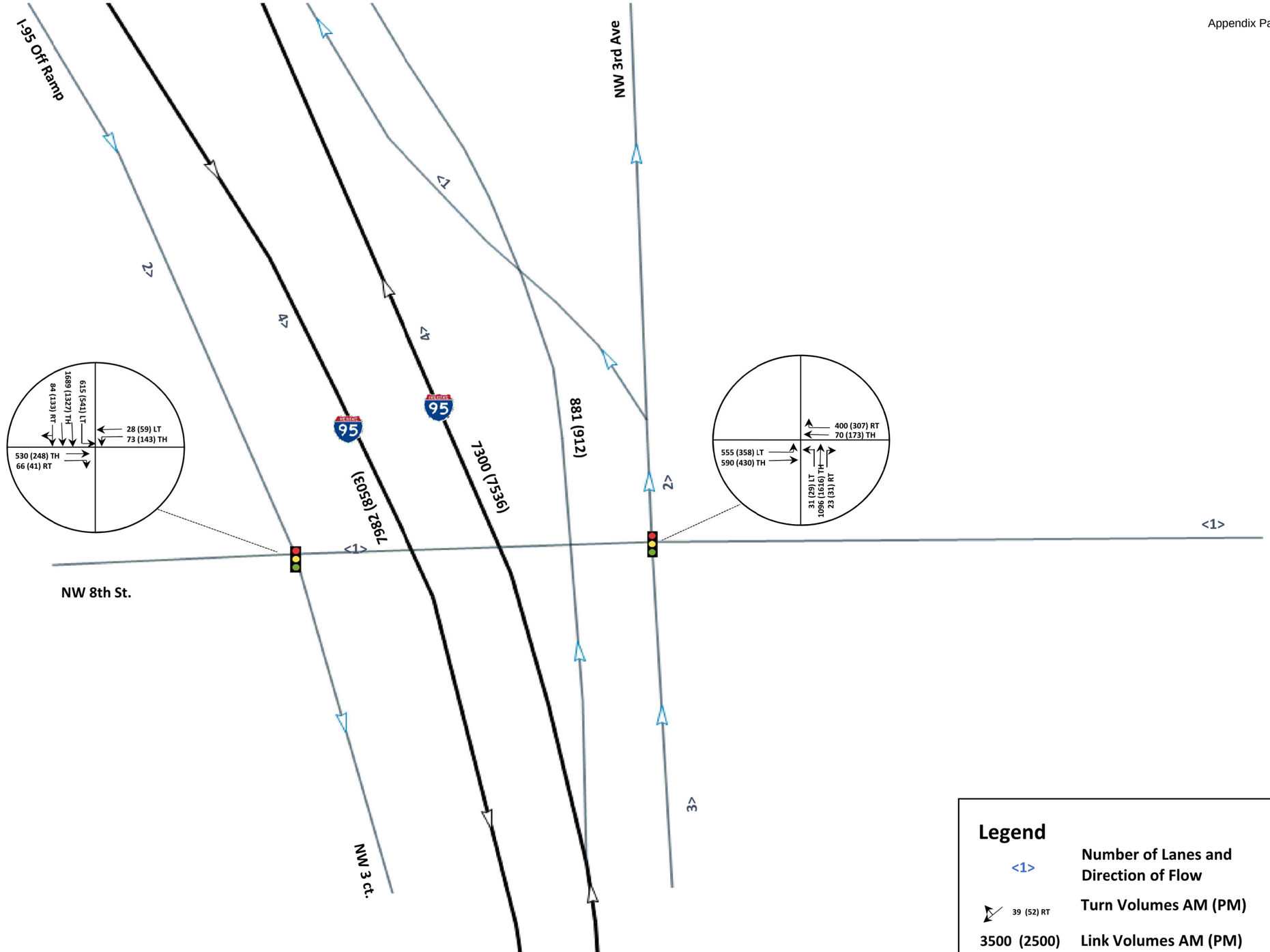
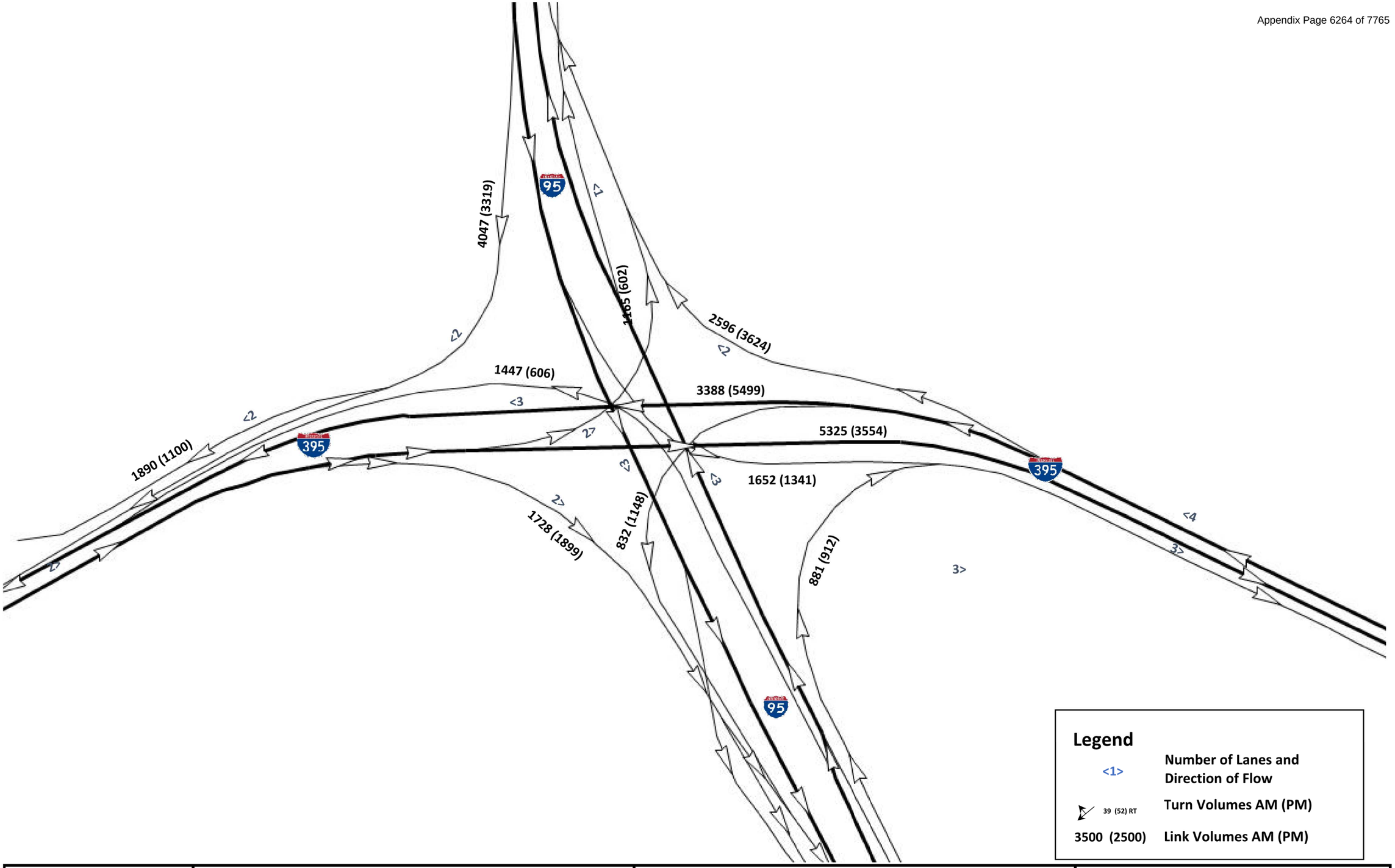


	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 7**



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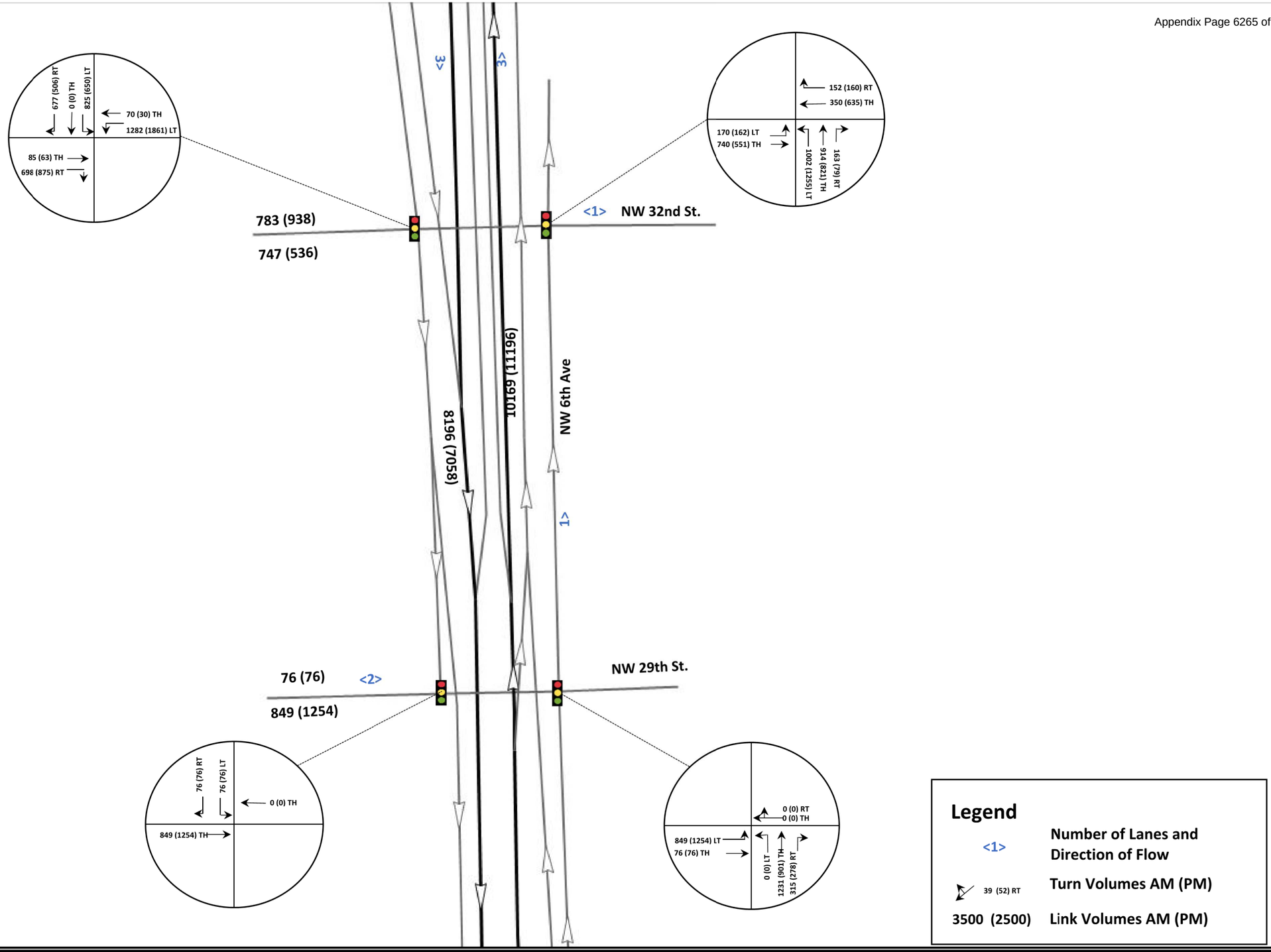
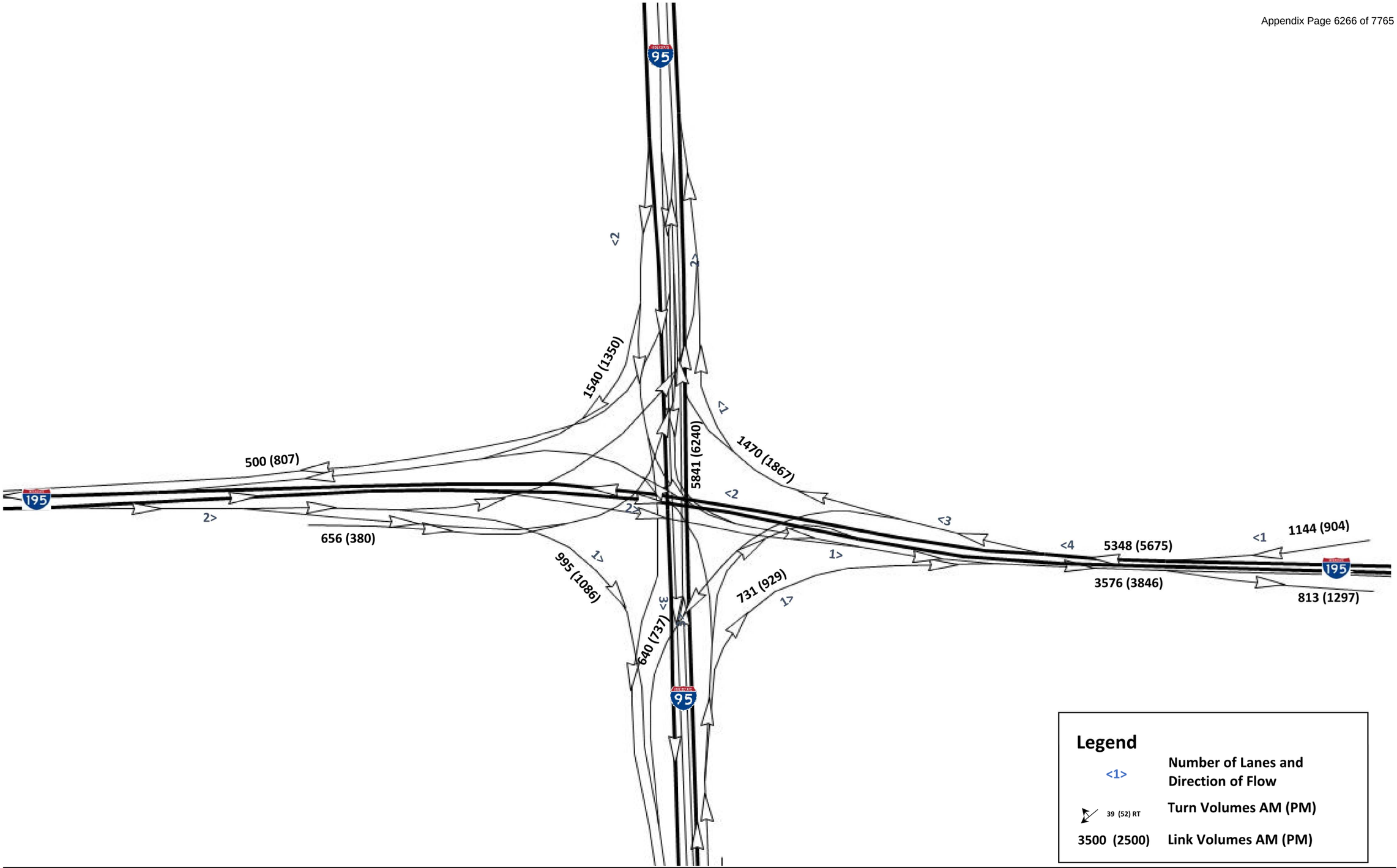


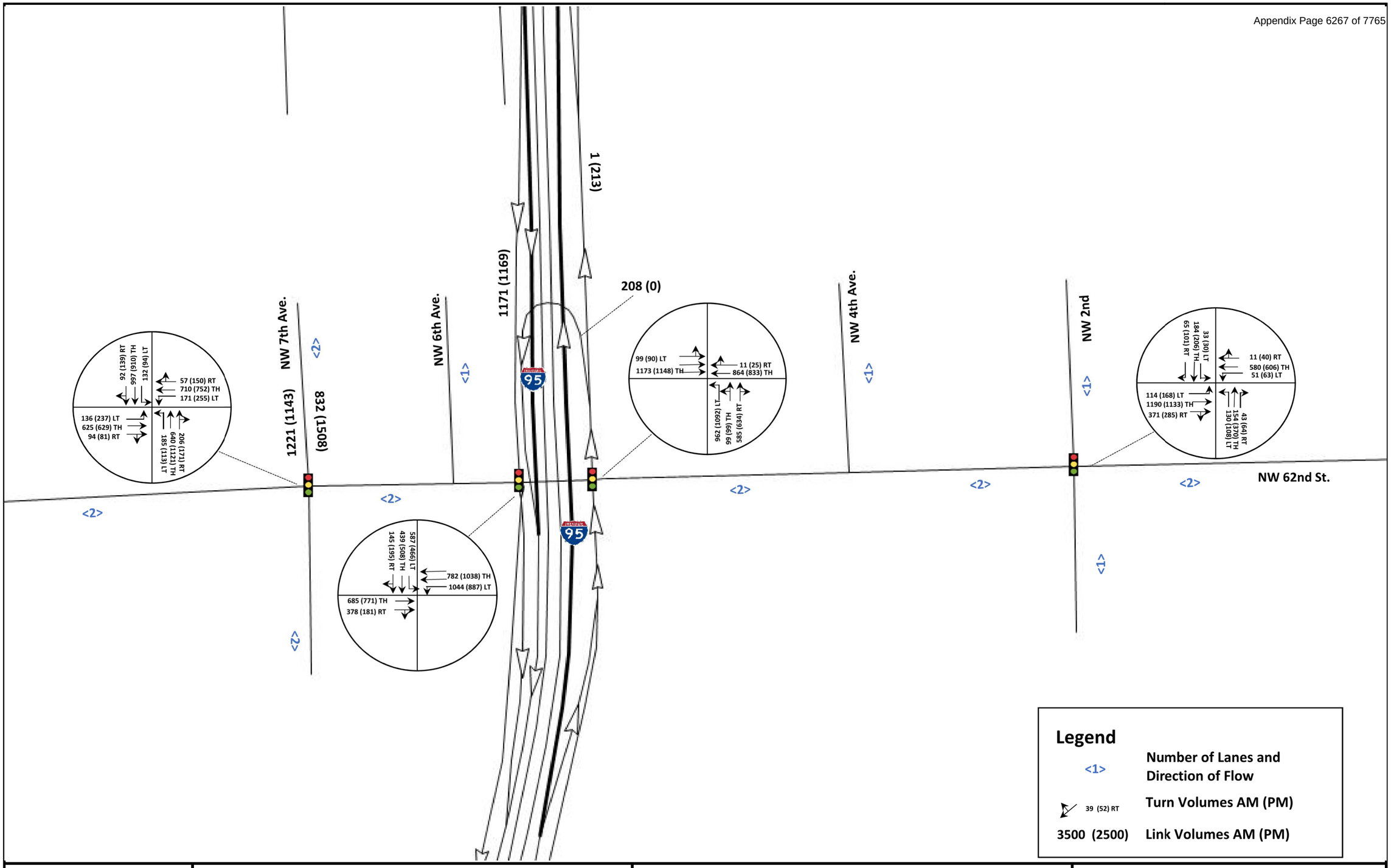
Legend

<1>	Number of Lanes and Direction of Flow
39 (52) RT	Turn Volumes AM (PM)
3500 (2500)	Link Volumes AM (PM)

	I-95 Corridor-wide Planning Refined Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 8.5**



	I-95 Corridor-wide Planning Refined Build (2045)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 9



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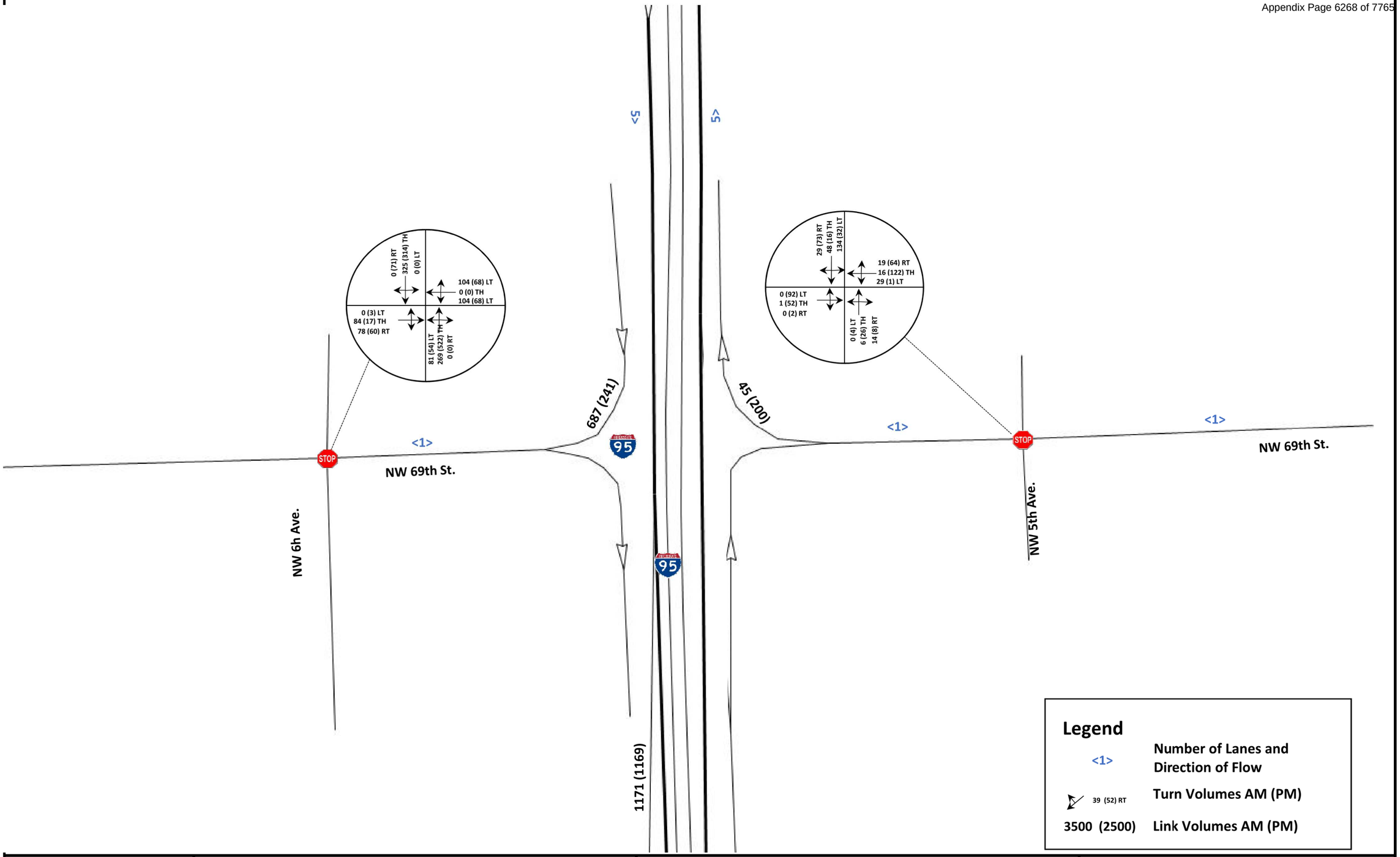

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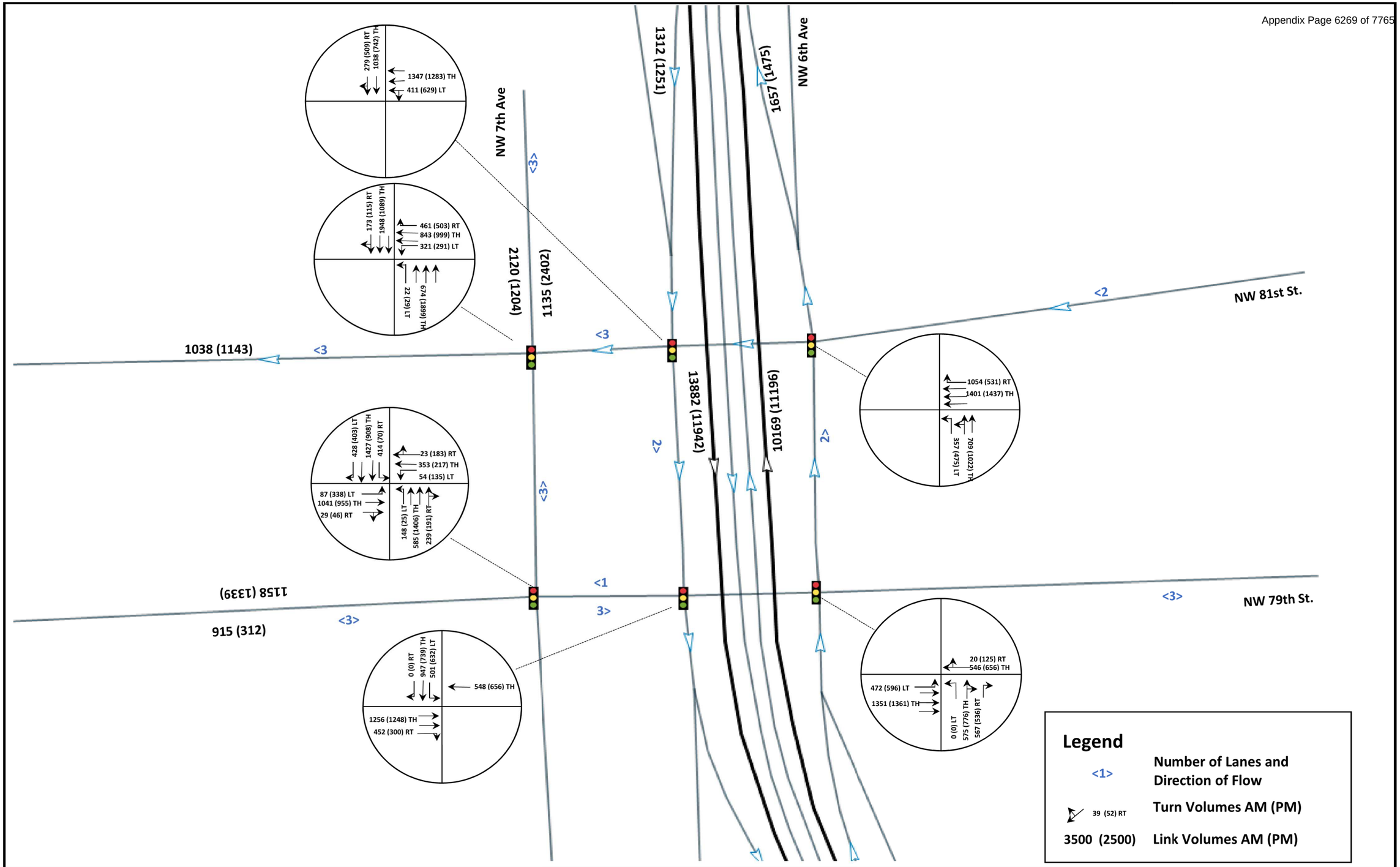

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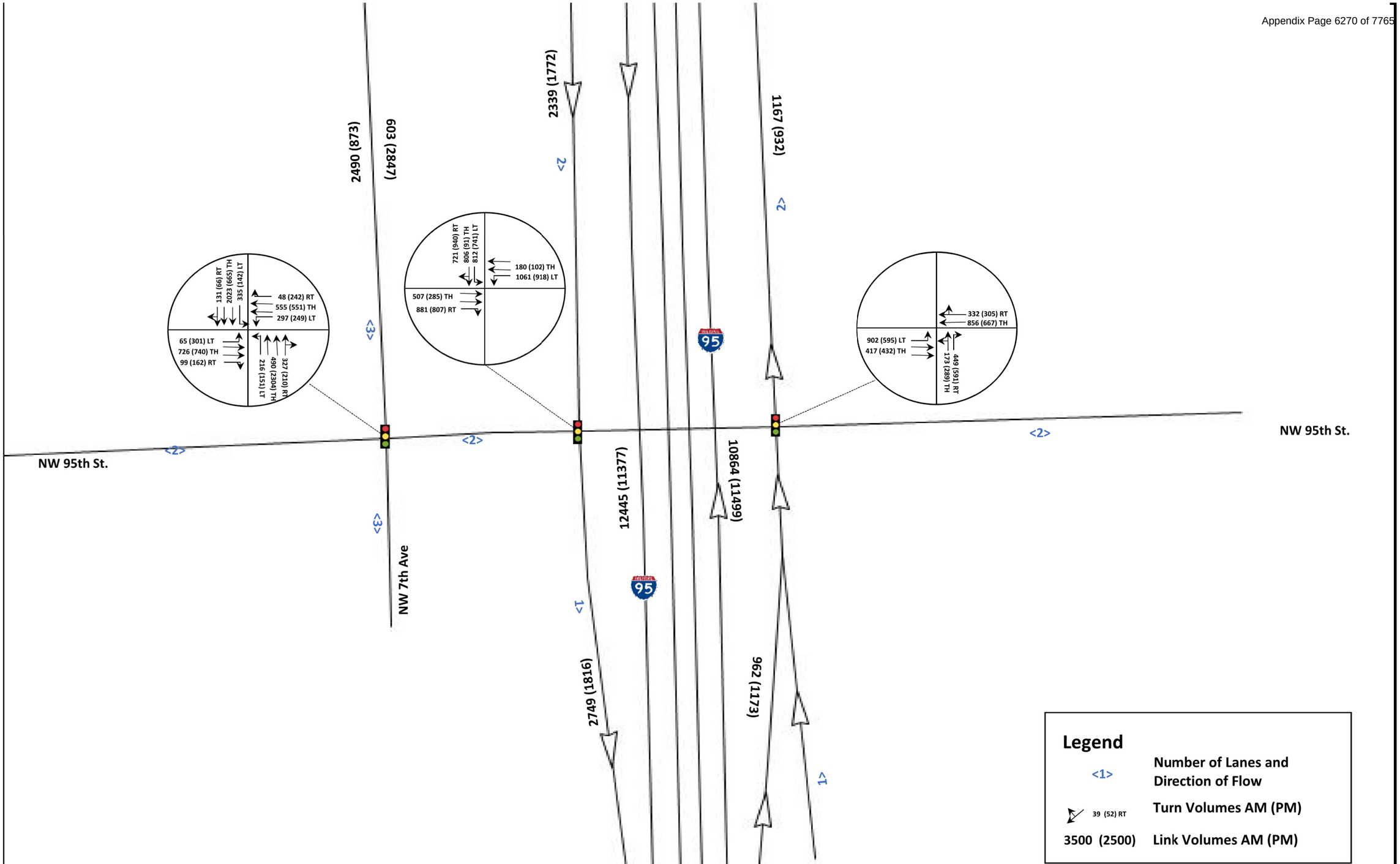

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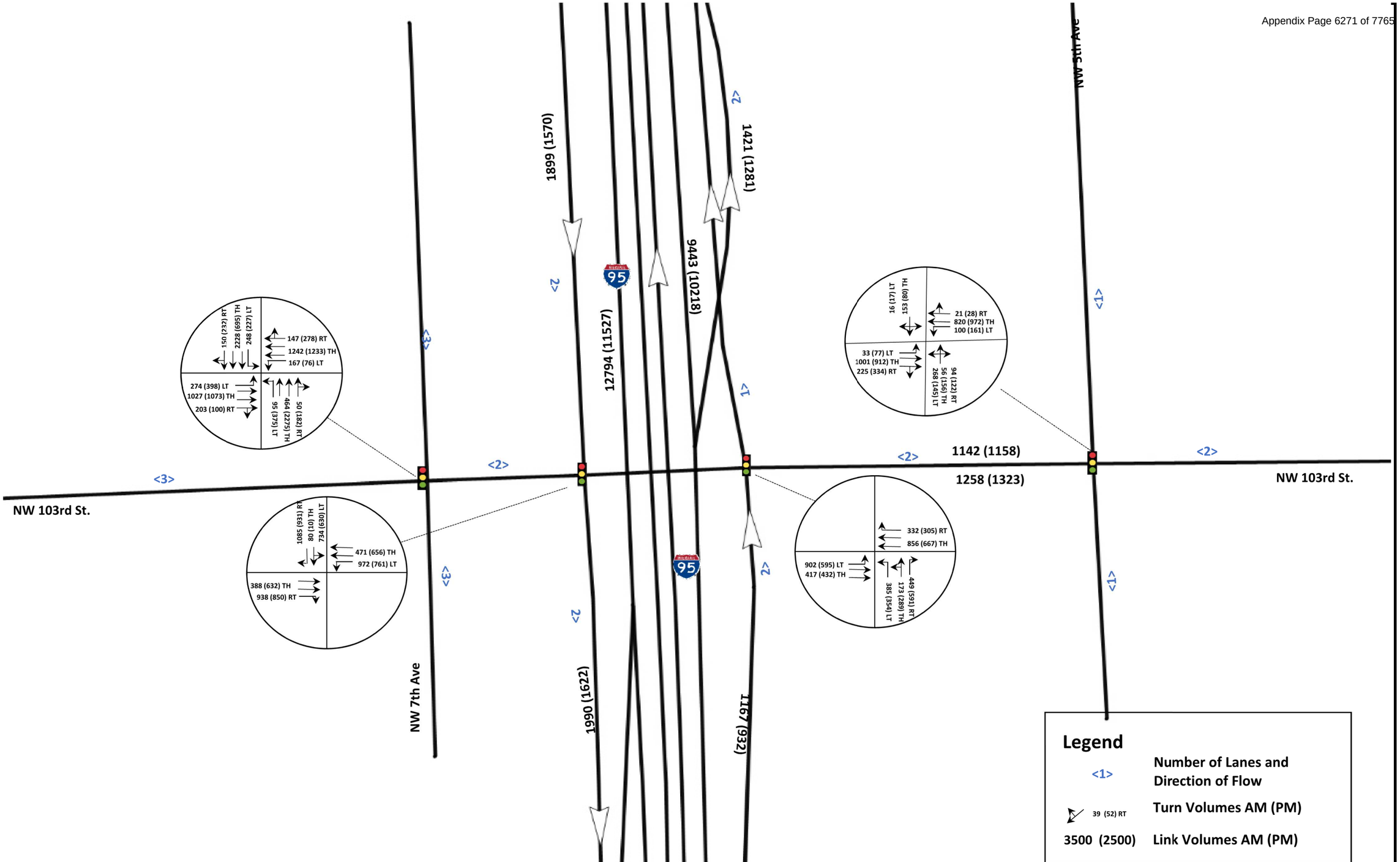

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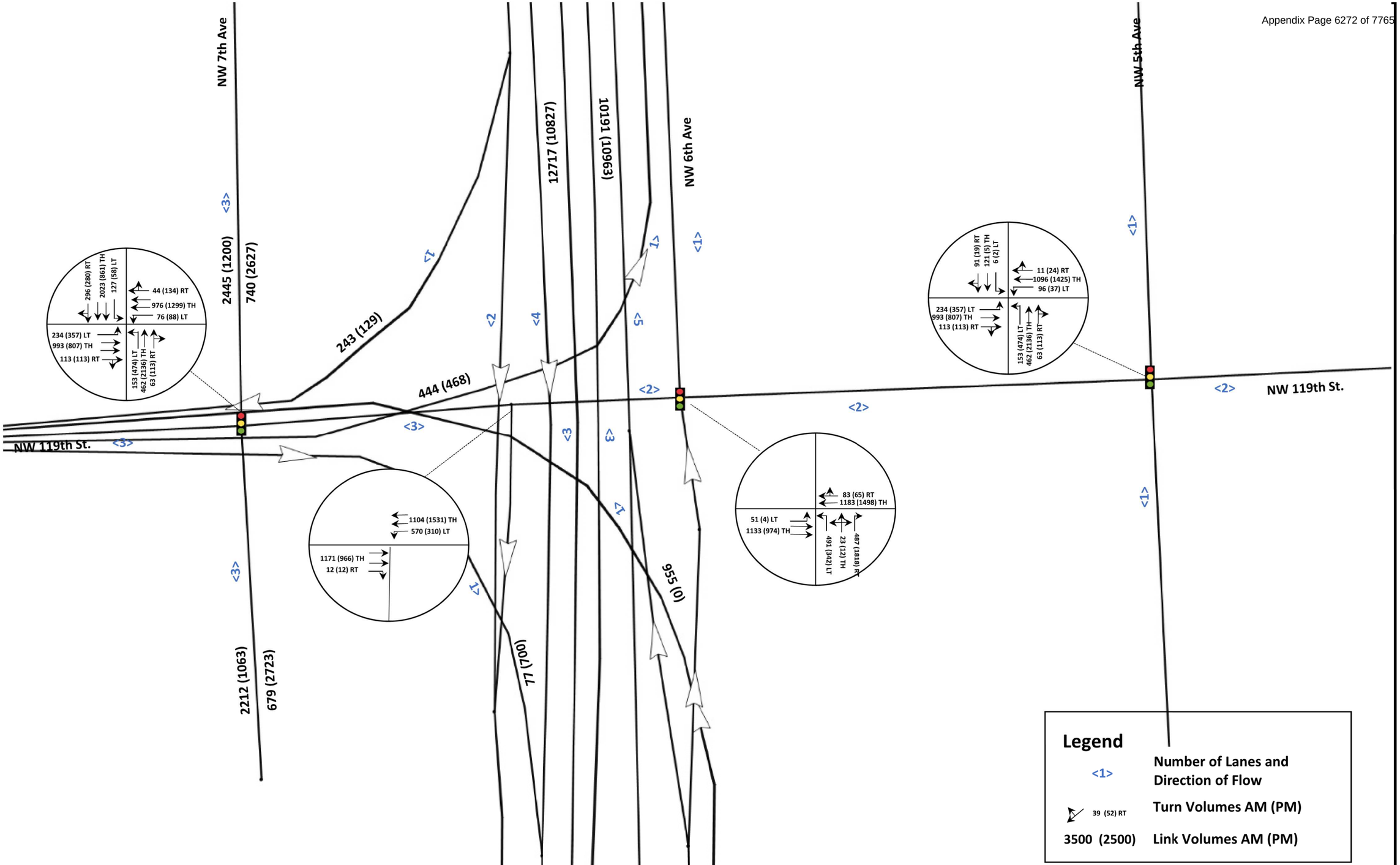

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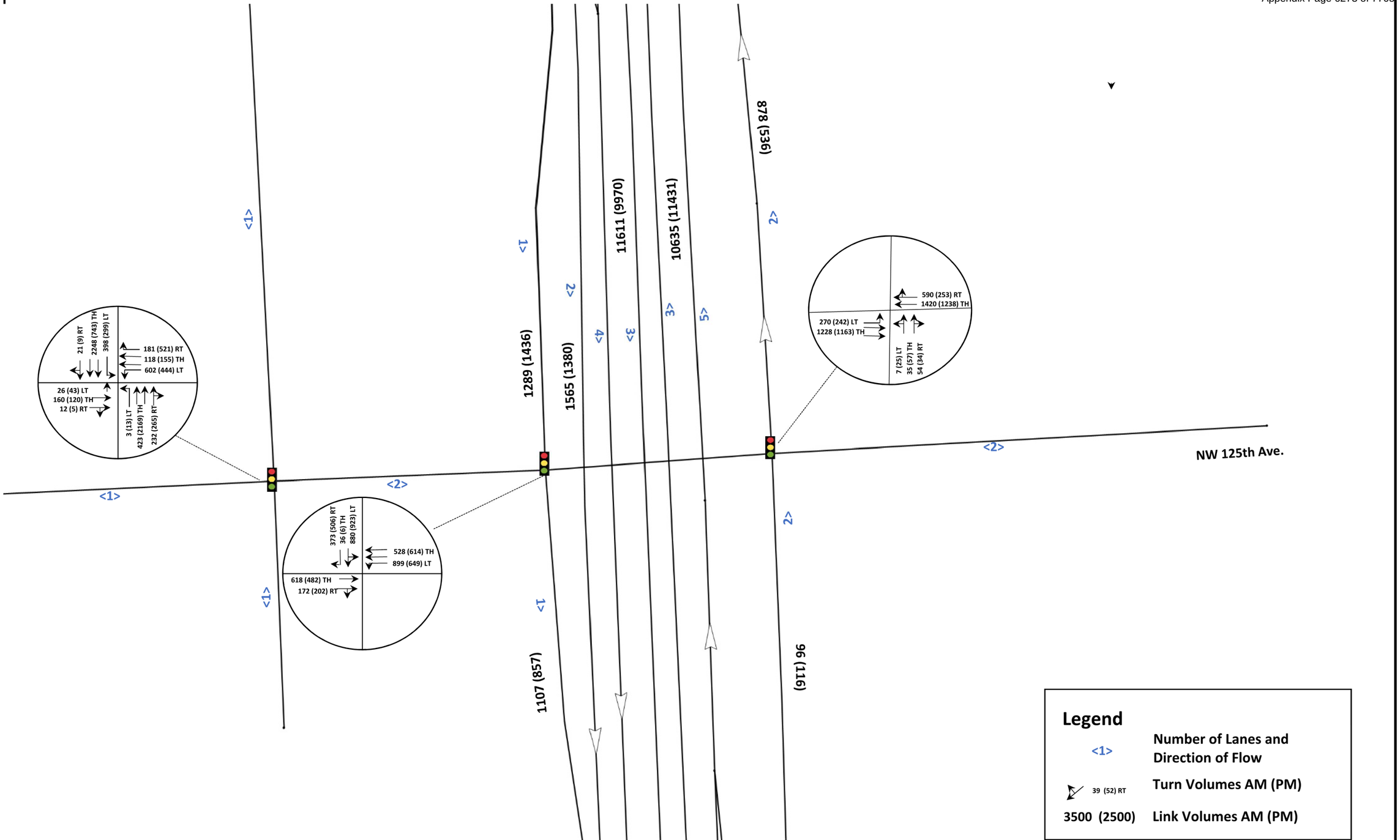
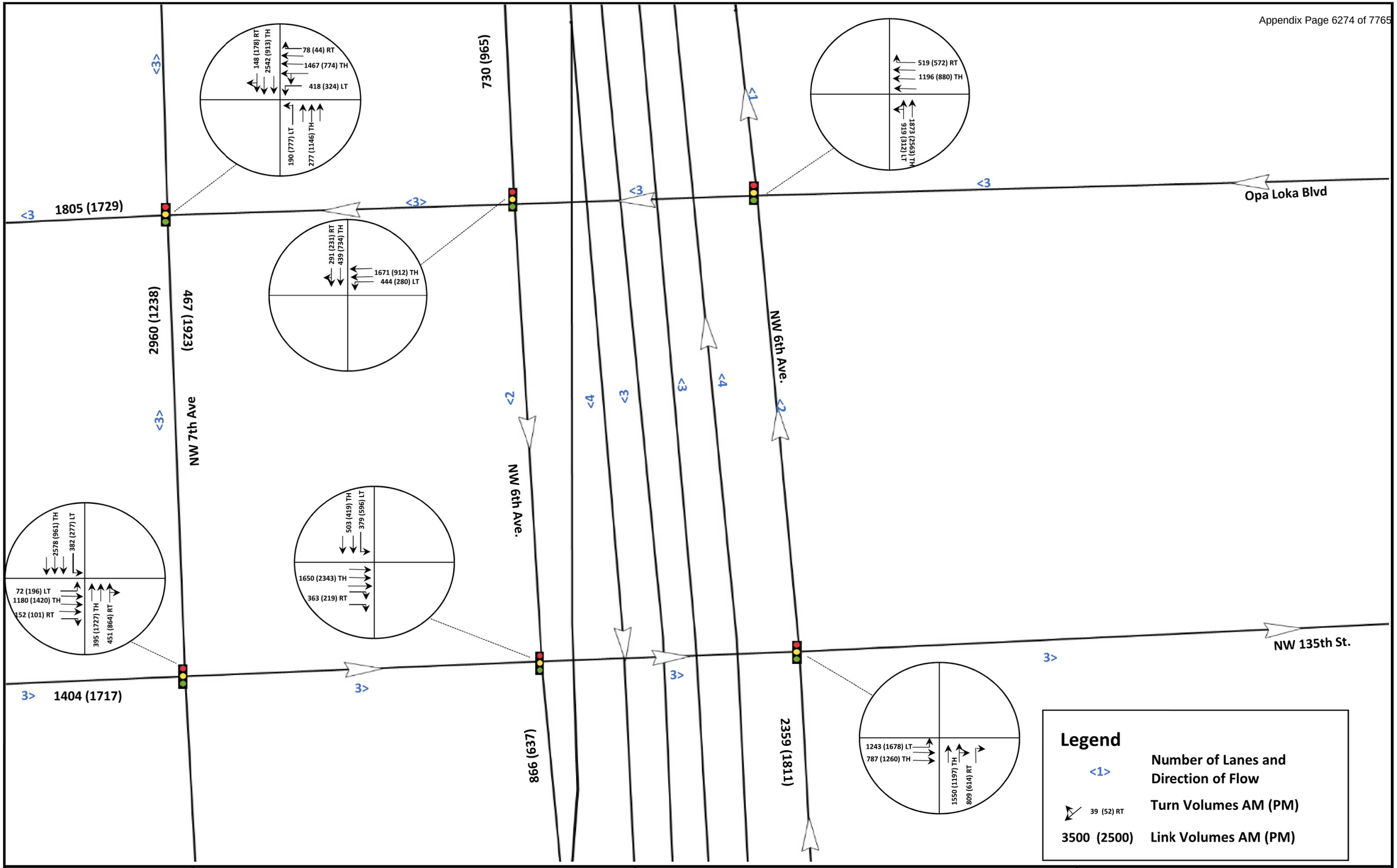
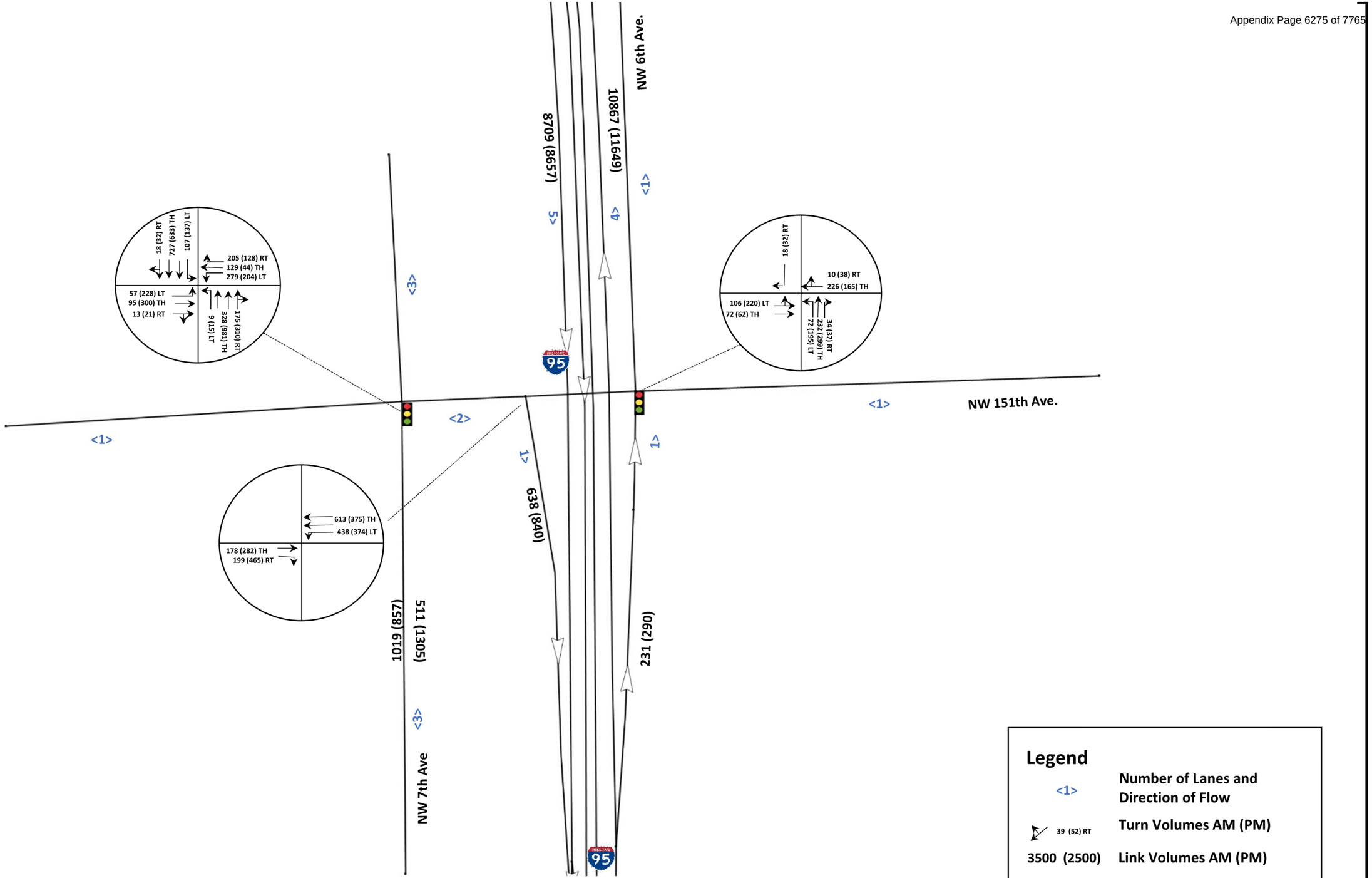


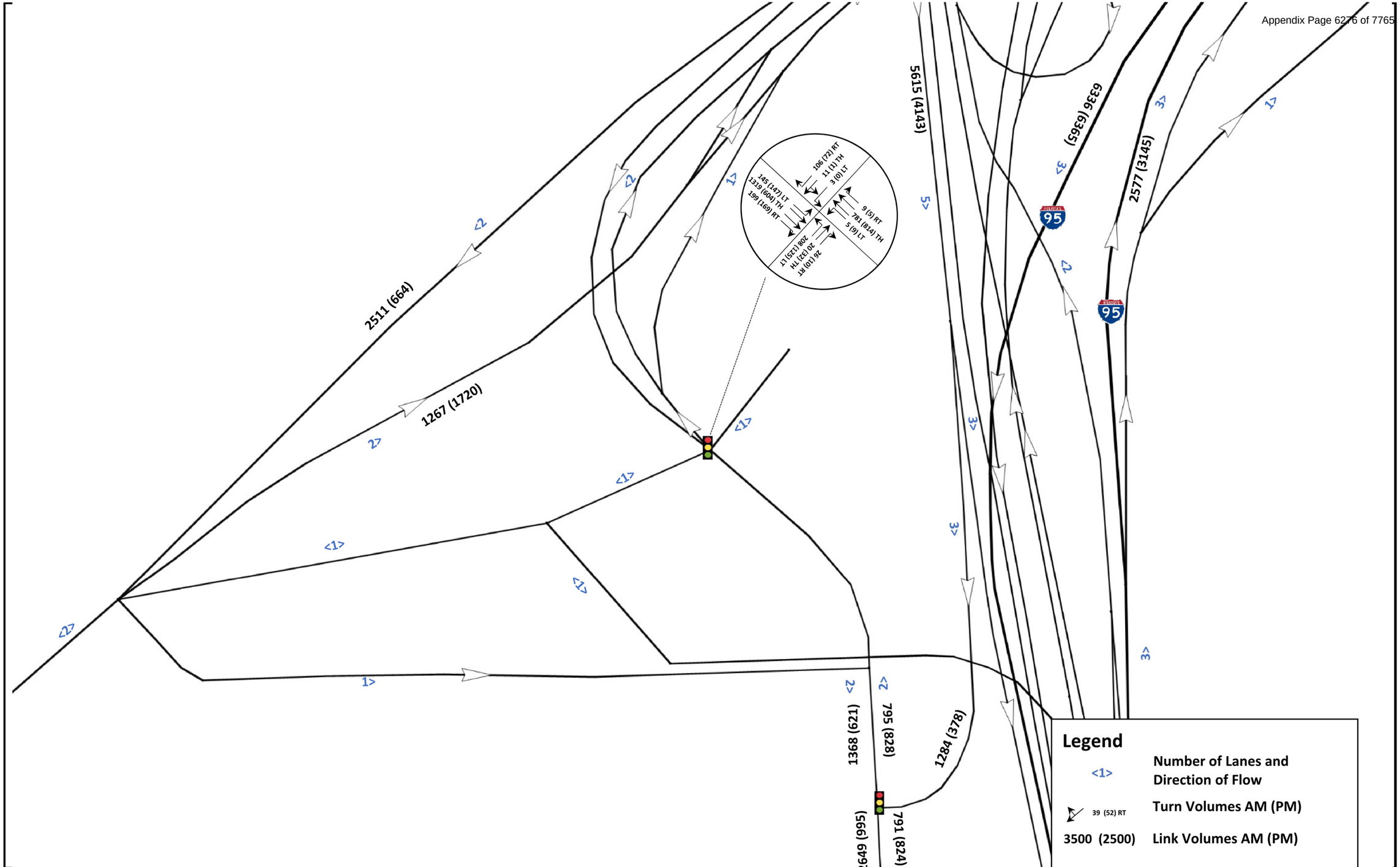
	I-95 Corridor-wide Planning Refined Build (2045)	AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes	SHEET No. 16



	I-95 Corridor-wide Planning Refined Build (2045)	**AM (7-8 AM) and PM (5-6 PM) Peak Hour Volumes**	**SHEET No. 17**



	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 18**



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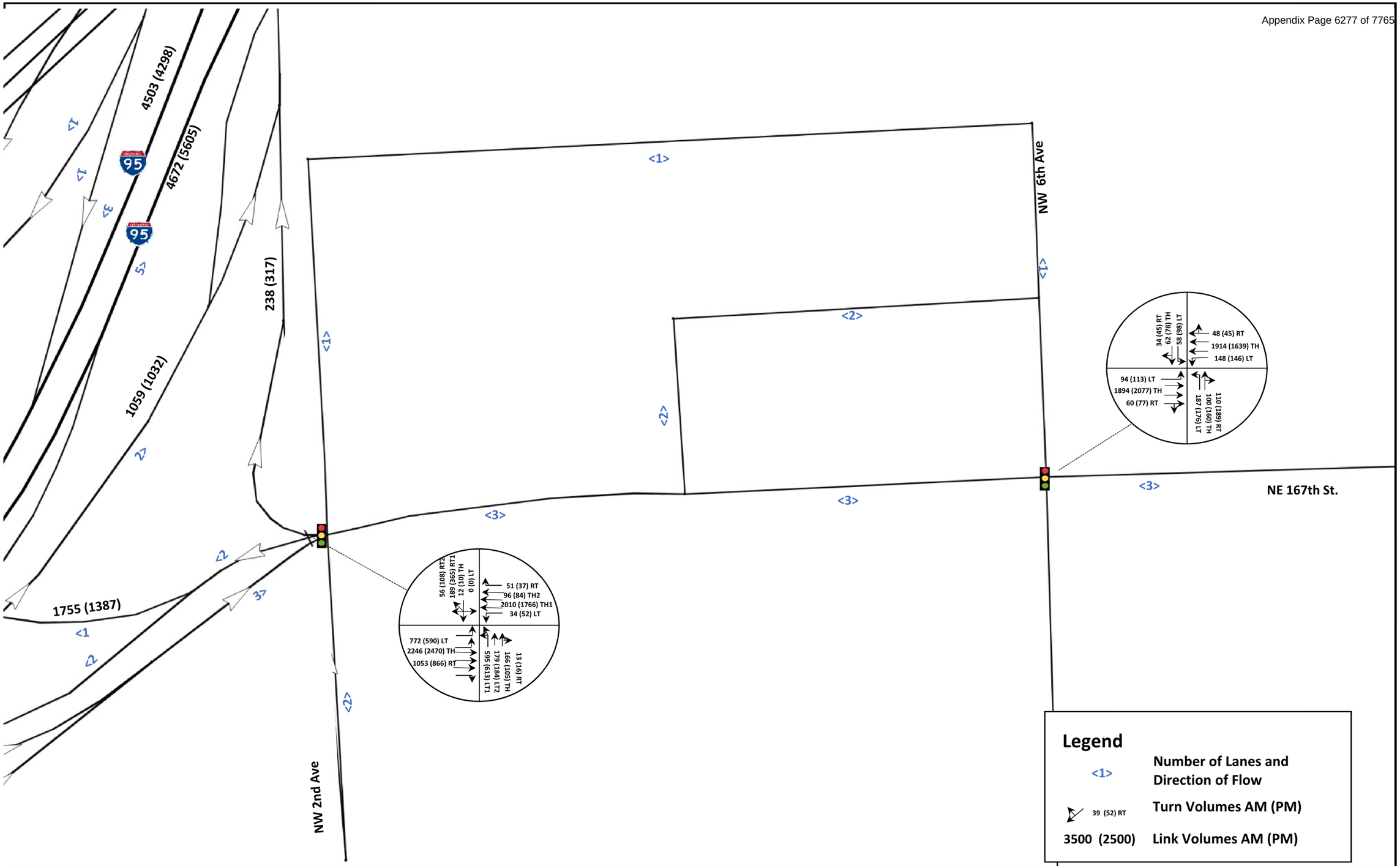

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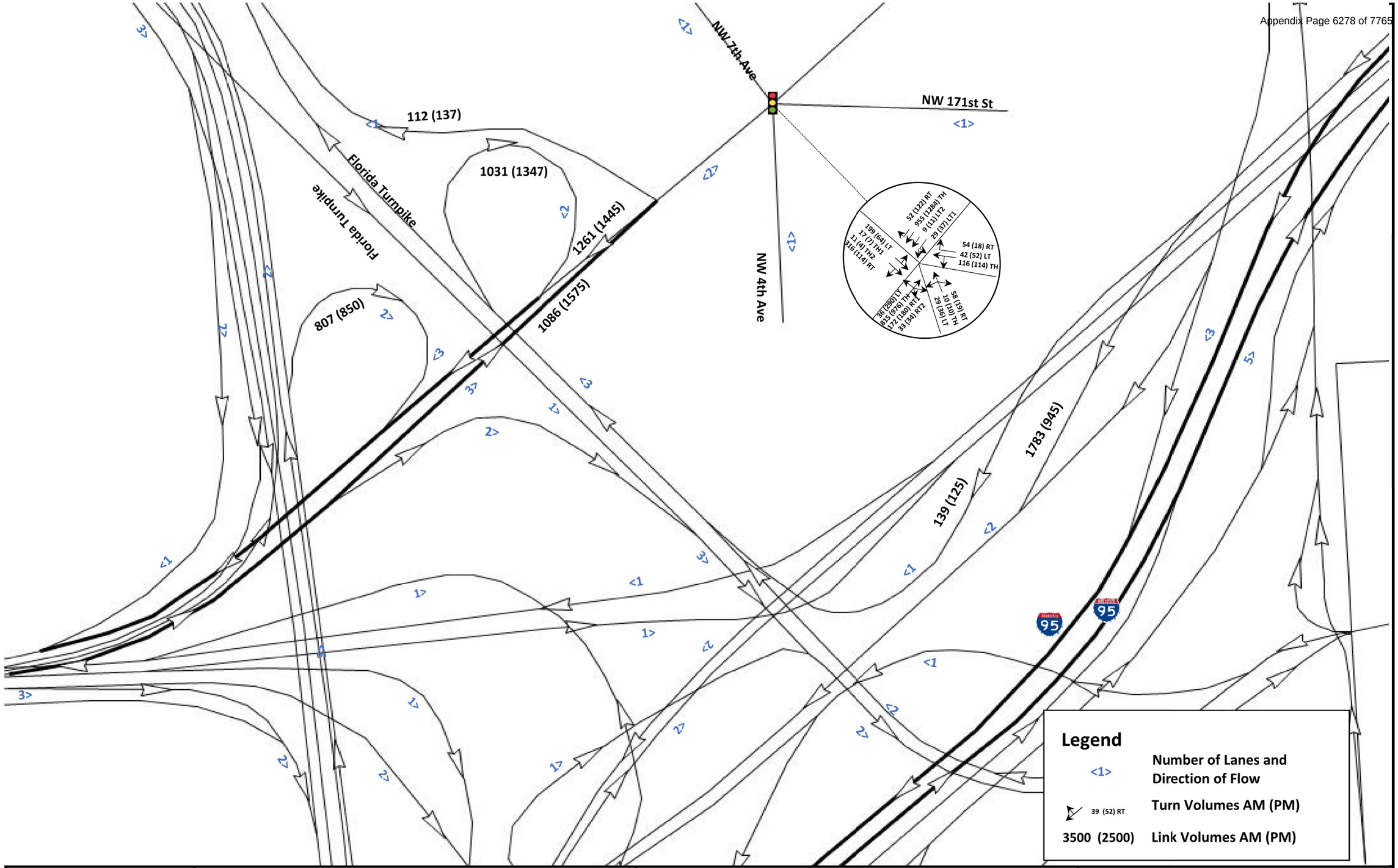

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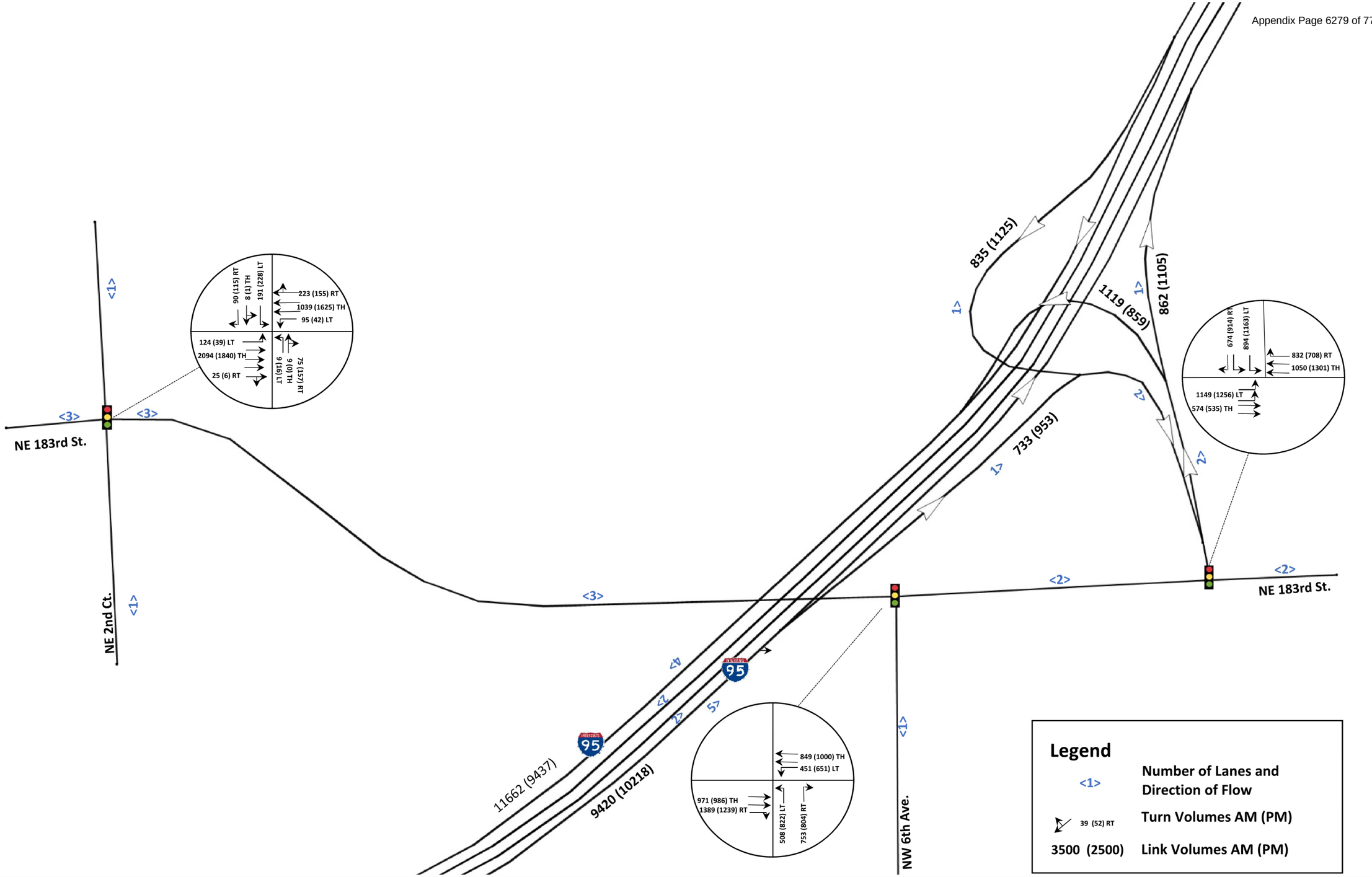
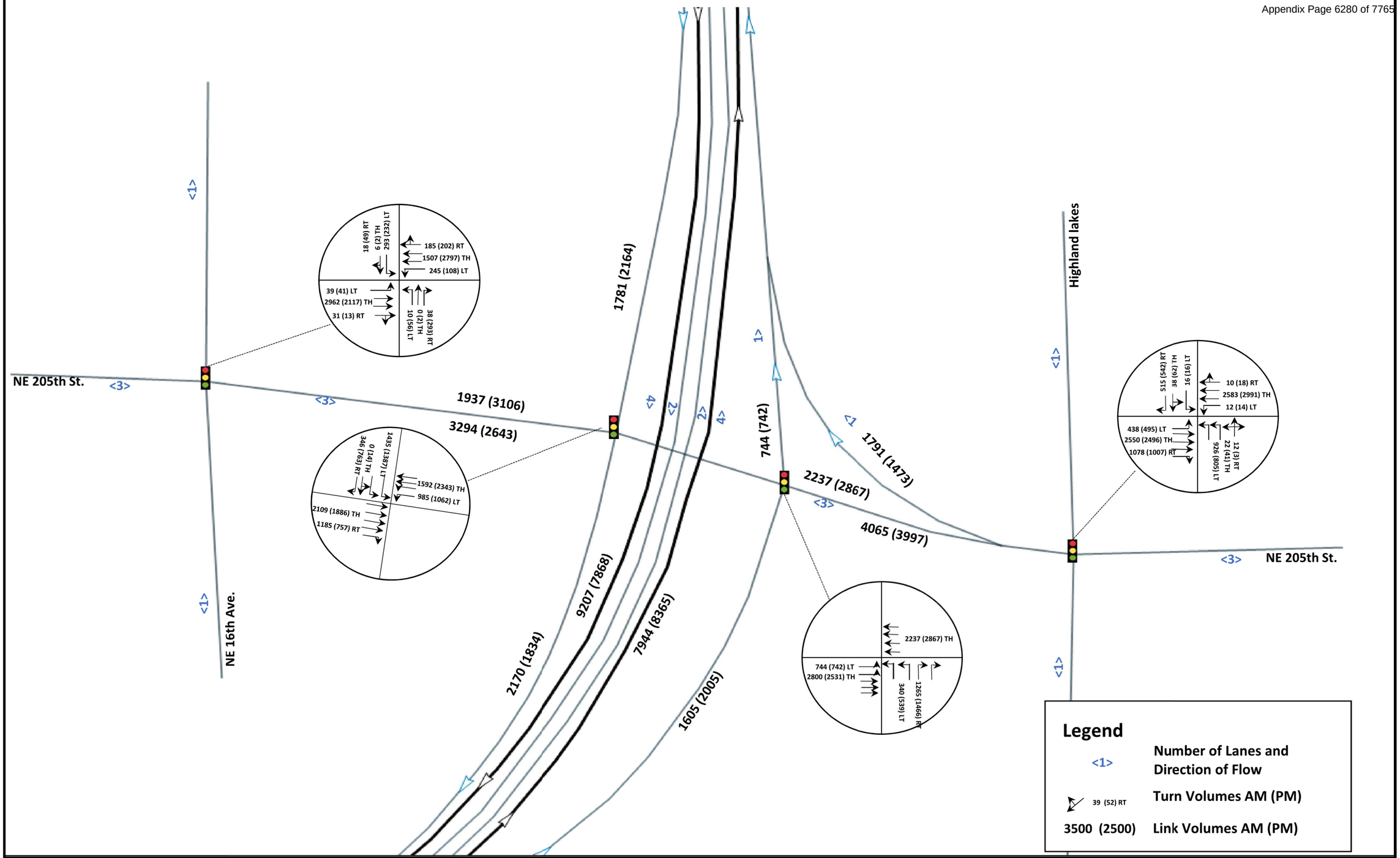


	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 22**



	I-95 Corridor-wide Planning **Refined Build (2045)**	**AM (7-8 AM) and PM (5-6 PM)** **Peak Hour Volumes**	**SHEET No. 23**

Appendix F. GEH Statistic

The GEH formula, which gets its name from Geoffrey E. Havers, allows for identification of statistically significant deviations from observed flows consistent with FHWA standards. Although its mathematical form is similar to a chi-squared test, it is not a true statistical test. Rather, it is an empirical formula that has proven useful for a variety of traffic analysis purposes. This statistic is useful during calibration because it provides a measure that is scaled in relation to the magnitude of the traffic count, as hourly flows on individual links are usually much smaller than the ADT comparisons that are made for regional models.

GEH values are a statistical measure commonly used in traffic simulation to indicate the difference between observed and modeled volumes. As traffic volumes on a link can vary from a few dozen to several thousand, the percentage error is not always a good indicator if the traffic model as a whole is representing the observed traffic counts. Since it is more important to accurately match the measure of the high-volume facilities, the GEH statistic incorporates the scale of the observed count into the calculations. The formulation of GEH to compare an observed and modeled traffic volume is as follows. Generally, a GEH of less than 5 indicates a good comparison, while a GEH above 10 can be considered suspect. The formula for GEH appears below. Table F.1 lists the validation criteria associated with this measure proposed for the calibration of the hourly demands for the corridor.

$$GEH = \sqrt{\frac{2 \times (Modeled - Observed)^2}{(Modeled + Observed)}}$$

Table F.1 Summary of Subarea Model Validation Criteria

Validation Criteria and Measures	Validation Acceptance Targets
GEH	GEH <5, for 85% of cases
Sum of Link Flows	Within 10 percent
Volumes at critical links (Flow >2,700)	Within 15%, for 85% of cases

Appendix G. Trip Length Frequencies: Coincidence Ratio

Figure G.1 6:00 a.m. to 7:00 a.m. Trip Length Distribution Coincidence Ratio = 86.0%

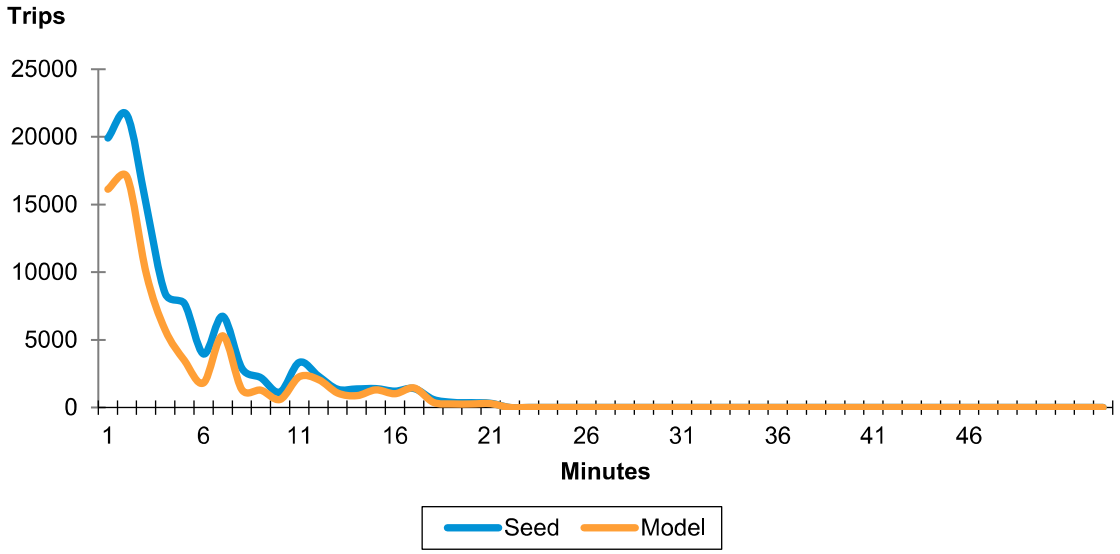


Figure G.2 7:00 a.m. to 8:00 a.m. Trip Length Distribution Coincidence Ratio = 85.2%

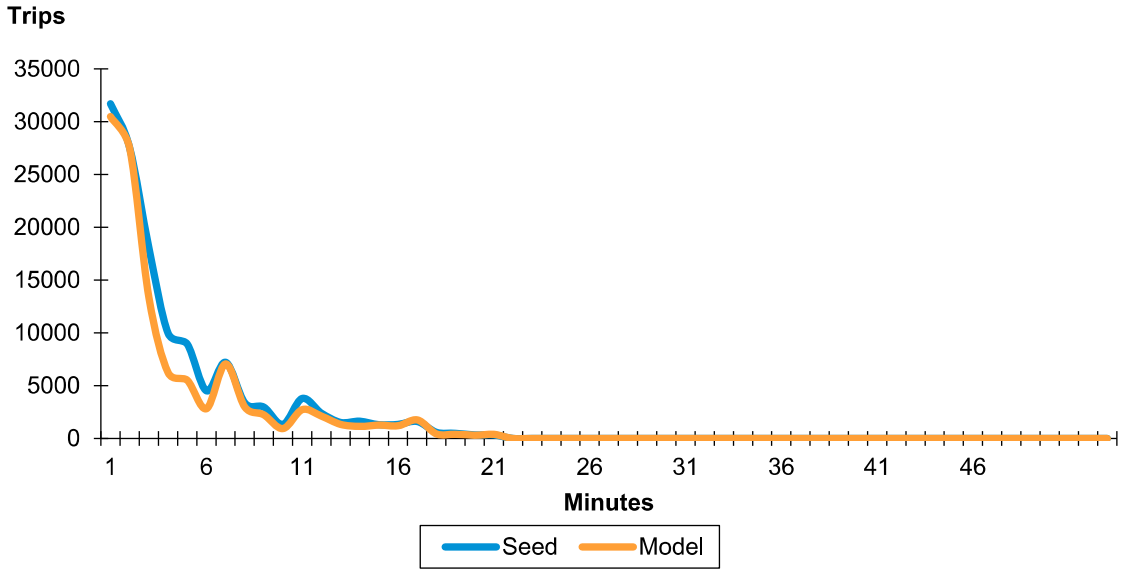


Figure G.3 8:00 a.m. to 9:00 a.m. Trip Length Distribution Coincidence Ratio = 86.3%

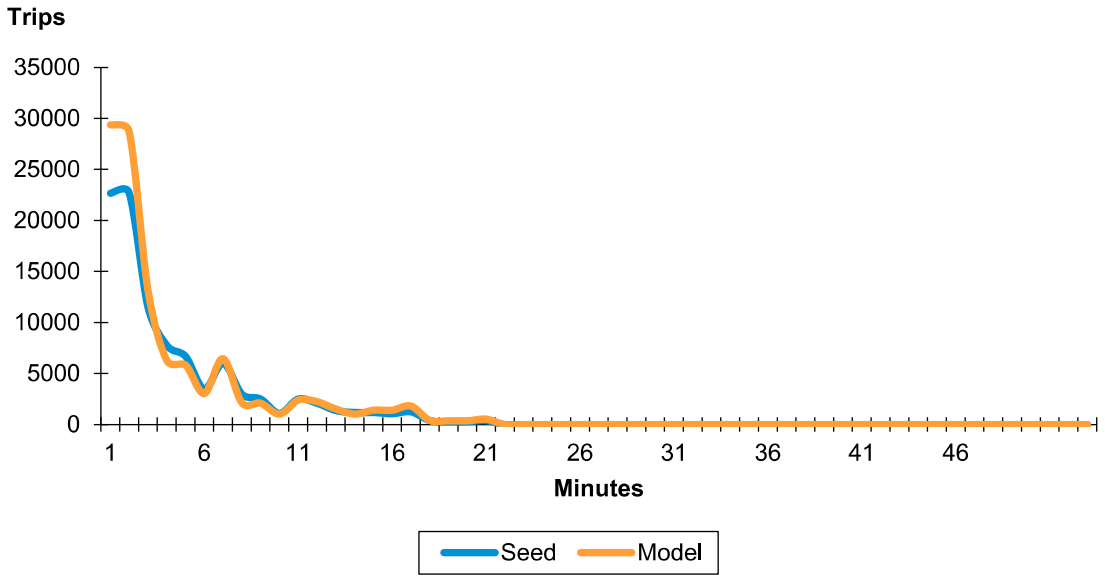


Figure G.4 9:00 a.m. to 10:00 a.m. Trip Length Distribution Coincidence Ratio = 86.4%

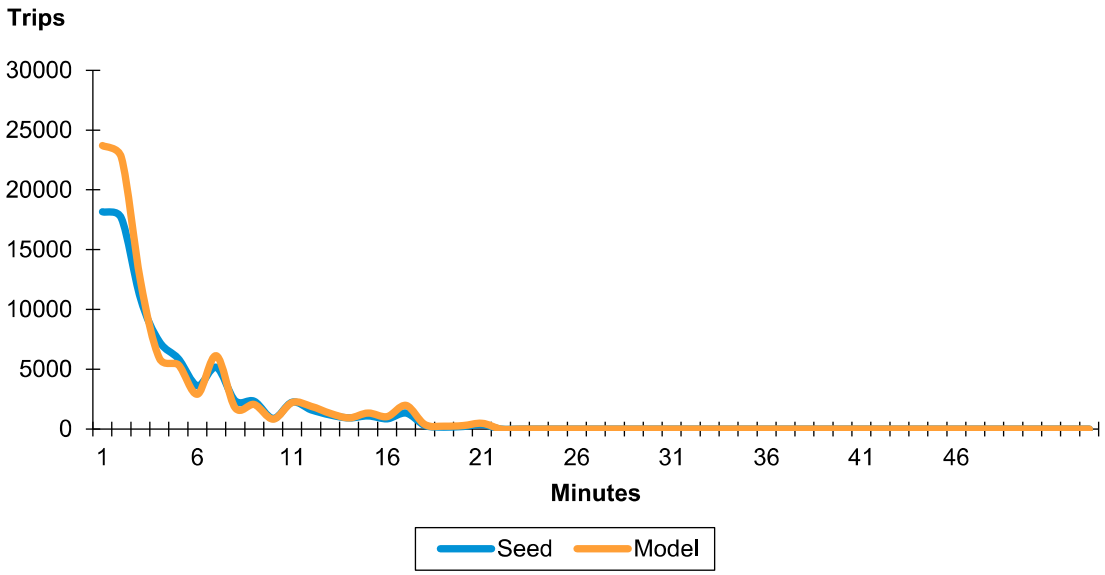


Figure G.5 3:00 a.m. to 4:00 a.m. Trip Length Distribution Coincidence Ratio = 84.8%

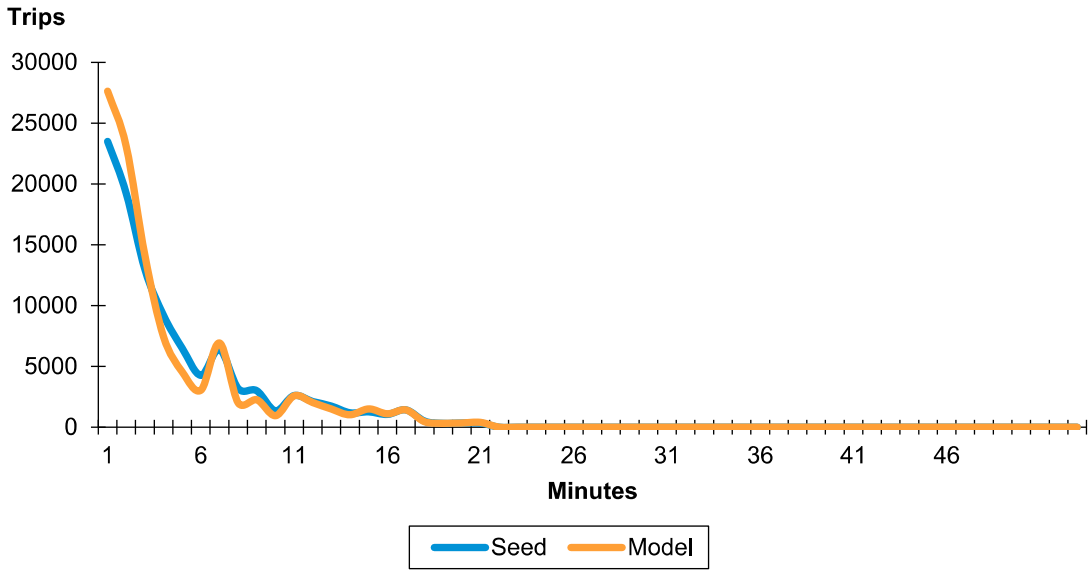


Figure G.6 4:00 a.m. to 5:00 a.m. Trip Length Distribution Coincidence Ratio = 85.8%

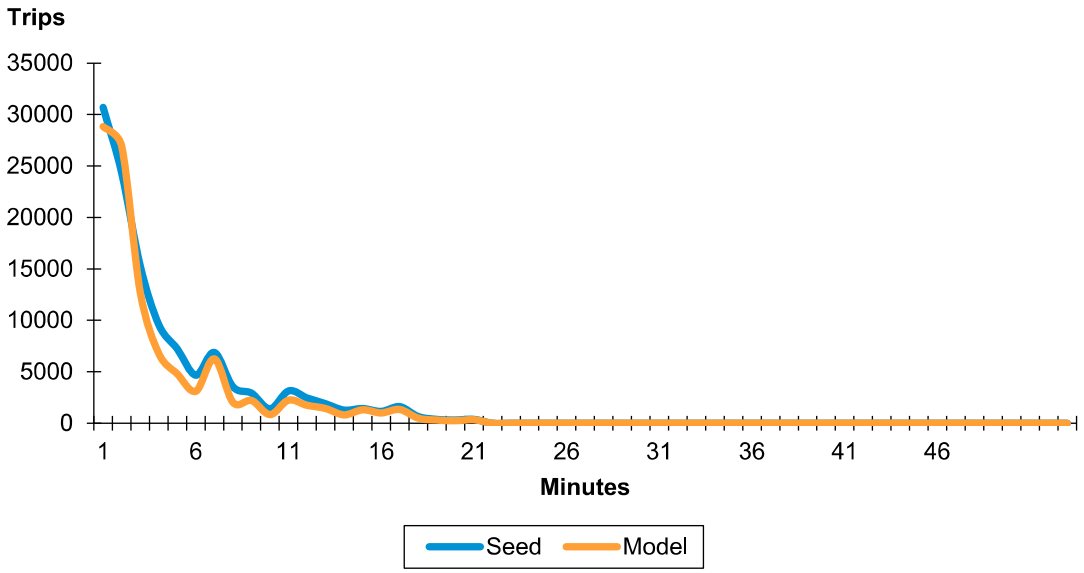


Figure G.7 4:00 a.m. to 5:00 a.m. Trip Length Distribution Coincidence Ratio = 85.8%

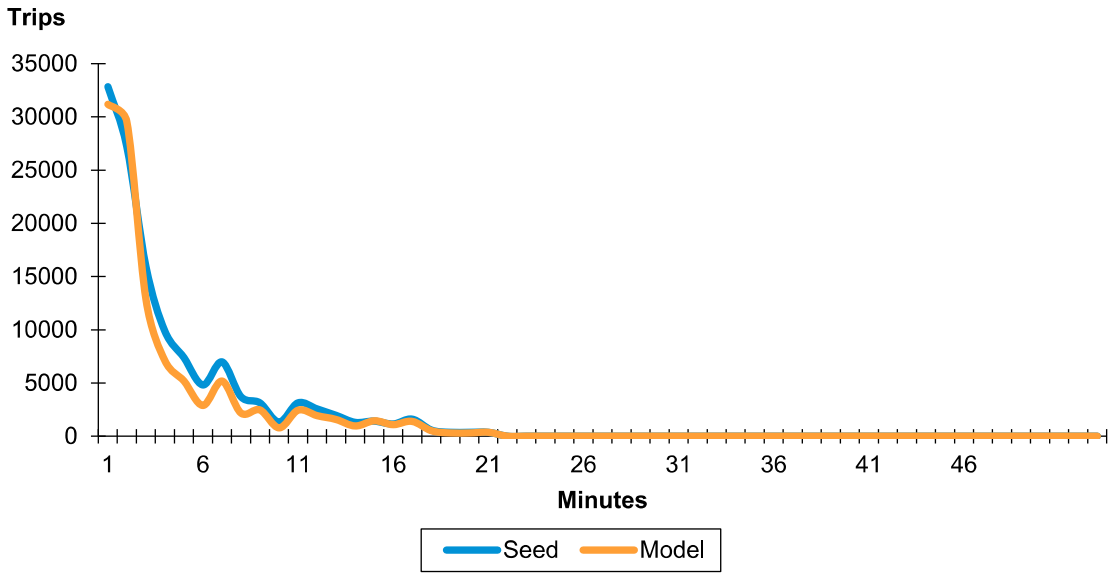
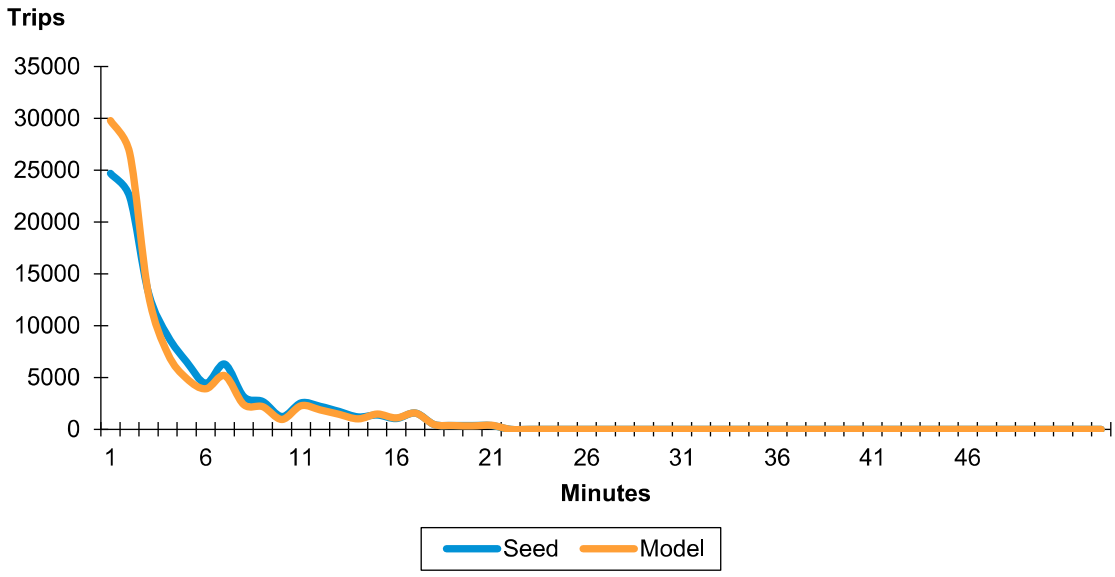


Figure G.8 6:00 a.m. to 7:00 a.m. Trip Length Distribution Coincidence Ratio = 85.2%



Appendix G

FUTURE BACKGROUND OPERATIONAL ANALYSIS

FINAL

Interstate 95 Corridor Planning Study Miami-Dade County

US 1/SR 5 to Broward County Line

FM# 414964-6-22-01

Future (2045) No-Build Conditions Traffic Operational Analysis

September 2019

Project No. 040006342

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Appendix A: HCS Freeway Analyses

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INTRODUCTION

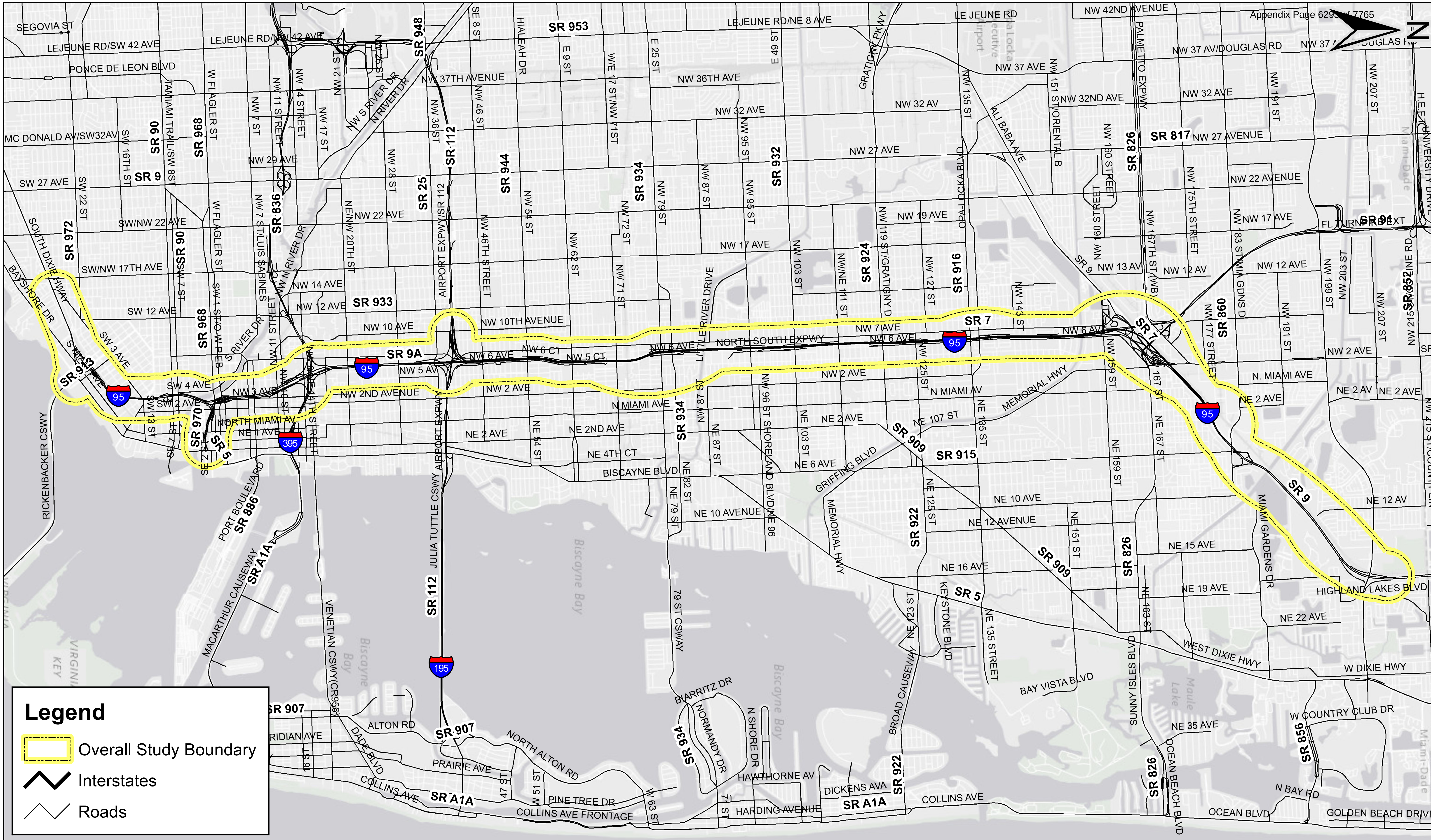
Interstate 95 (I-95) is the most highly traveled corridor in South Florida with over 250,000 vehicles traveling through parts of the corridor daily in Miami-Dade County. With long-term population growth projected in the region, travel demand in the corridor is expected to continue to increase over the next 20 years. The purpose of the I-95 Corridor Planning Study (CPS) is to perform a detailed planning-level analysis for the I-95 corridor within Miami-Dade County and develop improvement concepts. This report summarizes the future (2045) No-Build traffic operational analyses conducted as part of the I-95 CPS.

The southern project limit is SR 5/US-1/Dixie Highway at SW 16 Avenue in the City of Miami, approximately one-half mile south of the beginning of I-95. The northern project limit is the Broward/Miami-Dade County line. East-west study area limits generally included one adjacent signalized intersection east and west of the I-95 interchanges along the corridor, per the scope of services. A project map is shown in Figure 1.

Future No-Build traffic volumes were developed utilizing the Southeast Regional Planning Model, Version 7 (SERPM 7) and the VISSIM simulation model. SERPM 7 was utilized to obtain unconstrained volumes which were then input into VISSIM which projected constrained volumes based on future congestion. Operations along the mainline facility were evaluated with McTrans *Highway Capacity Software* (HCS 2010 v6.50) Facilities Module. Furthermore, capacity analyses for intersections along the I-95 corridor were performed with Trafficware's *Synchro* (Version 9.1) software, which is based on the 2000/2010 Editions of the *Highway Capacity Manual*.

Simulation models provide Measures of Performance (MOP) metrics, which are used to evaluate the corridor's traffic operations. Major analysis parameters included turning movement volumes, peak hour factors (PHF), and roadway geometry. Design hour truck (DHT) values were calculated using historical data from Florida Department of Transportation (FDOT) count sites within the study area, and were obtained from FDOT's Florida Traffic Online.

The operational analysis of the corridor study is presented in the following sections: future volume development, Level of Service (LOS) targets/analysis criterion, and operational analyses.



0 1 2 Miles

Figure 1. Project Location

VOLUME DEVELOPMENT

The future (2045) No-Build traffic operational analyses proposes to keep the existing roadway configuration into the future without future corridor improvements other than those that are already under construction or any funded, planned, or programmed improvements open to traffic by the analysis years. The traffic conditions with this alternative includes the acceptance of the existing congested traffic conditions.

Traffic Data

Traffic data were gathered or collected from various sources for the Existing analysis and used as a baseline for the No-Build analysis. AM and PM corridor-wide peak periods were determined in a previous analysis using FDOT count stations traffic data. A further description of the traffic data can be found in the *FDOT District 6, Interstate-95 Corridor Planning Study - Existing Conditions Operational Analysis Report*.

SERPM

The SERPM 7.0 model forecast was performed to produce estimates of unconstrained traffic volumes for the future year. The changes to the model inputs associated with the future year scenarios were incorporated into the regional model dataset and the regional model was used to forecast future year traffic demands in a manner consistent with the base year for each scenario.

VISSIM

VISSIM was used for the creation of constrained links and analysis of constrained traffic volumes. Further explanation on the use of VISSIM in the No-Build analysis can be found in the *I-95 Corridor-wide Planning for Operational Deficiencies: U.S. 1/SR 5 to Broward County Line* report prepared by Cambridge Systematics, Inc.

LOS TARGETS/ANALYSIS CRITERION

FDOT Topic No. 525-000-006-c provides LOS targets for the State Highway System (SHS). At the outset of the study FDOT utilized LOS standards (FDOT Topic No. 525-000-006); however, in 2017 FDOT transitioned from standards to targets. The following LOS criteria were considered for the analysis since the study area meets the condition of urbanized areas with population over 500,000.

- SIS Facilities – LOS D
- Other State Roads – LOS D

Operational analysis criteria also included the comparison of queue and available storage for turning movements. Passenger car vehicle lengths, accounting for space between vehicles, were assumed to be 25 feet. The 95th percentile queue lengths (in feet) were gathered from the Synchro/HCM 2010 results for intersection approaches. HCM 2000 results were used for lane configurations not supported by the HCM 2010 methodology.

OPERATIONAL ANALYSIS

HCS Mainline Operational Analysis

Traffic capacity analyses were performed to evaluate freeway operational conditions along I-95. HCS was used to examine ramp areas and merge/diverge areas along the study corridor.

The future background (2045) general purpose, weaving, and ramp merge/diverge analysis results for I-95 operational conditions are summarized in **Tables 1** through **4**. Density was used as the measure of effectiveness to estimate the LOS of facility segments. It should be noted that for certain segments upstream bottlenecks restrict volumes downstream which lowers the v/c ratio and raises the LOS. However, based on demand, the LOS for those segments may be worse if the bottlenecks were improved. Demand-based LOS can be found in the HCS results provided in the appendix. The HCS results are presented by northbound and southbound directions and have been included in **Appendix A**. The corridor was divided into two segments for the analysis: Segment 1 – US 1 to NW 95 Street and Segment 2 – NW 95 Street to Broward County/Miami-Dade County Line.

Table 1 summarizes the northbound AM and PM HCS results for Segment 1 (US 1 to NW 95 Street). The results indicate that eight (8) of the 31 segments are anticipated to operate at LOS E or worse during at least one (1) of the peak periods. Note, the subject segments are shown in blue.

Table 1: I-95 NB Segment 1 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
US 1/I-95 Mainline to Westbound Rickenbacker Causeway On-Ramp	Basic	3,365 (2,364)	0.71 (0.50)	25.3 (17.0)	C (B)
Westbound Rickenbacker Causeway On-Ramp	Merge	5,932 (4,826)	1.00 (0.95)	45.6 (40.4)	E (E)
Westbound Rickenbacker Causeway On-Ramp to SW 8 Street Off-Ramp	Basic	5,932 (4,826)	0.67 (0.63)	24.6 (22.9)	C (C)
SW 8 Street Off-Ramp	Diverge	5,932 (4,826)	0.67 (0.63)	27.3 (25.9)	C (C)
SW 8 Street Off-Ramp to SW 8 Street On-Ramp (East side connection)	Basic	5,649 (4,426)	0.63 (0.58)	22.3 (20.4)	C (C)
SW 8 Street On-Ramp (East side connection) to SW 8 Street On-Ramp (West side connection)	Merge	6,597 (5,423)	0.77 (0.73)	30.2 (28.3)	D (D)
SW 8 St On-Ramp (West side connection) to SR 970/Downtown Distributor Off-Ramp	Weaving	7,578 (6,466)	0.87 (0.84)	22.2 (20.8)	C (C)
NW 2 Street Off-Ramp to SR 970/Downtown Distributor On-Ramp	Basic	5,836 (5,175)	0.70 (0.70)	25.2 (24.8)	C (C)
SR 970 On-Ramp to I-395 Off-Ramp	Weaving	8,036 (7,514)	0.96 (0.95)	21.9 (45.6)	C (F)
I-395 Off-Ramp to SR 836 Off-Ramp	Basic	6,323 (6,097)	0.59 (0.60)	20.5 (26.7)	C (D)
SR 836 Off-Ramp	Diverge	6,323 (6,097)	0.79 (0.78)	72.1 (46.1)	E (F)
SR 836 Off-Ramp to NW 8 Street On-Ramp	Basic	4,289 (5,264)	0.54 (0.67)	22.5 (60.8)	C (F)
NW 8 Street On-Ramp	Merge	5,528 (6,718)	0.71 (0.86)	28.0 (55.9)	C (F)
I-395 Flyover Bypass Off-Ramp	Diverge	5,528 (6,718)	0.71 (0.84)	28.6 (62.6)	D (F)
I-395 Flyover Bypass Off-Ramp to I-395/SR 836 On-Ramp	Basic	5,528 (6,718)	0.71 (0.83)	25.3 (67.6)	C (F)
I-395/SR 836 On-Ramp	Merge	8,492 (10,398)	1.00 (1.00)	52.4 (64.7)	E (E)
I-395 Flyover Bypass On-Ramp to I-95 Managed Lanes Ingress	Weaving	8,492 (10,398)	0.62 (0.62)	10.8 (8.9)	B (A)
I-195/SR 112 Off-Ramp	Diverge	6,181 (7,598)	0.55 (0.55)	21.3 (22.1)	C (C)
I-195/SR 112 Off-Ramp to I-195/SR 112 On-Ramp	Basic	4,037 (4,975)	0.49 (0.48)	16.7 (16.5)	B (B)
I-195/SR 112 On-Ramp	Merge	5,153 (6,316)	0.64 (0.68)	23.7 (25.4)	C (C)
I-195/SR 112 On-Ramp to NW 62 Street Off-Ramp	Basic	5,153 (6,316)	0.38 (0.41)	13.3 (14.1)	B (B)
NW 62 Street Off-Ramp	Diverge	5,153 (6,316)	0.48 (0.51)	17.6 (19.6)	B (B)
NW 62 Street Off-Ramp to NW 62 Street On-Ramp	Basic	4,331 (4,707)	0.41 (0.38)	14.1 (13.1)	B (B)
NW 62 Street On-Ramp	Merge	5,556 (5,482)	0.54 (0.46)	20.0 (17.1)	B (B)
Westbound NW 69 Street On-Ramp	Merge	5,909 (5,600)	0.57 (0.48)	21.4 (17.5)	C (B)
Westbound NW 69 Street On-Ramp to NW 79 Street Off-Ramp	Ramp Overlap	5,909 (5,600)	0.57 (0.48)	21.6 (17.8)	C (B)
NW 79 Street Off-Ramp	Diverge	5,909(5,600)	0.57 (0.48)	21.6 (17.8)	C (B)
NW 79 Street Off-Ramp to NW 81 Street On-Ramp	Basic	4,721 (4,518)	0.46 (0.38)	15.8 (13.1)	B (B)
NW 81 Street On-Ramp	Merge	5,918 (5,593)	0.59 (0.50)	21.8 (18.2)	C (B)
NW 81 Street On-Ramp to NW 95 Street Off-Ramp	Ramp Overlap	5,918 (5,593)	0.59 (0.50)	21.8 (18.4)	C (C)
NW 95 Street Off-Ramp	Diverge	5,918 (5,593)	0.59 (0.50)	21.7 (18.4)	C (B)

Legend: AM (PM)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 2 summarizes the northbound AM and PM HCS results for Segment 2 (NW 95 Street to the Broward County Line). The results indicate that three (3) of the 33 segments are anticipated to operate at LOS E or worse during at least one (1) of the peak periods, as highlighted in blue.

Table 2: I-95 NB Segment 2 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
NW 95 Street Off-Ramp to NW 95 Street On-Ramp	Basic	6,160 (5,258)	0.66 (0.56)	23.2 (19.4)	C (C)
NW 95 Street On-Ramp to NW 103 Street Off-Ramp	Weaving	7,095 (5,841)	0.68 (0.57)	23.1 (20.4)	C (C)
NW 103 Street Off-Ramp to NW 103 Street On-Ramp	Basic	6,589 (5,200)	0.70 (0.56)	25.2 (19.3)	C (C)
NW 103 Street On-Ramp	Merge	7,779 (6,193)	0.83 (0.66)	32.4 (25.0)	D (C)
NW 103 Street On-Ramp to NW 119 Street Off-Ramp	Ramp Overlap	7,779 (6,193)	0.83 (0.66)	32.4 (25.0)	D (C)
NW 119 Street Off-Ramp	Diverge	7,779 (6,193)	0.83 (0.66)	31.5 (23.4)	D (C)
NW 119 Street Off-Ramp to NW 125 Street Off-Ramp	Basic	6,514 (5,680)	0.70 (0.61)	24.9 (22.0)	C (C)
NW 125 Street Off-Ramp	Diverge	6,514 (5,680)	0.70 (0.61)	25.7 (21.4)	C (C)
NW 125 Street Off-Ramp to NW 125 Street On-Ramp	Basic	5,838 (5,179)	0.62 (0.55)	21.6 (19.1)	C (C)
NW 125 Street On-Ramp to NW 135 Street Off-Ramp	Weaving	6,865 (5,818)	0.87 (0.60)	32.0 (22.2)	D (C)
NW 135 Street Off-Ramp to Opa Locka Blvd On-Ramp	Basic	5,722 (4,974)	0.61 (0.53)	21.2 (18.5)	C (C)
Opa Locka Blvd On-Ramp to NW 151 Street Off-Ramp	Weaving	6,662 (6,005)	0.57 (0.55)	29.7 (22.1)	D (C)
Managed Lanes Egress	Merge	7,718 (6,975)	0.76 (0.74)	64.4 (28.7)	F (D)
Managed Lanes Egress to Northbound Turnpike Off-Ramp	Basic	7,718 (6,975)	0.60 (0.59)	96.7 (20.9)	F (C)
Northbound Turnpike Off-Ramp	Diverge	7,718 (6,975)	1.00 (0.99)	44.2 (40.8)	E (E)
NW 167 Street Off-Ramp	Diverge	3,870 (3,305)	0.50 (0.47)	19.0 (17.1)	B (B)
NW 167 Street Off-Ramp to Northbound SR 7/US 441 Off-Ramp	Basic	3,452 (2,927)	0.45 (0.42)	15.6 (14.4)	B (B)
Northbound SR 7/US-441 Off-Ramp	Diverge	3,452 (2,927)	0.45 (0.42)	18.3 (16.0)	B (B)
Northbound US-441 Off-Ramp to Northbound SR 7/US 441 On-Ramp	Basic	2,392 (1,855)	0.31 (0.27)	10.9 (9.2)	A (A)
Northbound SR 7/US-441 On-Ramp	Merge	5,388 (4,594)	0.61 (0.66)	23.6 (25.3)	C (C)
Northbound SR 7/US-441 On-Ramp to End of 4-Lane Section	Basic	5,388 (4,594)	0.46 (0.49)	15.9 (17.1)	B (B)
Beginning of 3-Lane Section to Managed Lanes Ingress	Basic	5,388 (4,594)	0.61 (0.66)	21.3 (23.2)	C (C)
Managed Lanes Ingress	Diverge	5,388 (4,594)	0.71 (0.66)	27.1 (26.3)	C (C)
Miami Gardens Drive Off-Ramp	Diverge	4,658 (3,901)	0.61 (0.56)	24.7 (20.8)	C (C)
Miami Gardens Drive Off-Ramp to Miami Gardens Drive On-Ramp	Basic	3,858 (3,060)	0.51 (0.45)	17.8 (15.4)	B (B)
Miami Gardens Drive On-Ramp	Merge	4,963 (4,222)	0.66 (0.61)	25.1 (22.8)	C (C)
Miami Gardens Drive On-Ramp to Managed Lanes Egress	Basic	4,963 (4,222)	0.50 (0.46)	17.3 (15.9)	B (B)
Managed Lanes Egress	Merge	5,256 (4,570)	0.53 (0.49)	19.3 (18.0)	B (B)
Managed Lanes Egress to Ives Dairy Road Off-Ramp	Basic	5,256 (4,570)	0.42 (0.39)	14.6 (13.6)	B (B)
Ives Dairy Road Off-Ramp	Diverge	5,256 (4,570)	0.53 (0.49)	19.6 (17.7)	B (B)
Ives Dairy Road Off-Ramp to Ives Dairy Road On-Ramp	Basic	4,355 (3,489)	0.44 (0.38)	15.1 (13.0)	B (B)
Ives Dairy Road On-Ramp	Merge	6,555 (5,574)	0.66 (0.60)	25.2 (22.5)	C (C)
Ives Dairy Road On-Ramp to Broward County Line	Basic	6,555 (5,574)	0.53 (0.48)	18.4 (16.6)	C (B)

Legend: AM (PM)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 3 summarizes the southbound AM and PM HCS results for Segment 1 (NW 95 Street to US 1). The results indicate that 20 of the 31 segments are anticipated to operate at LOS E or worse during one (1) or both of the peak periods, as highlighted in blue.

Table 3: I-95 SB Segment 1 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
NW 95 Street Off-Ramp to NW 95 Street On-Ramp	Basic	8,076 (8,593)	0.86 (0.93)	33.4 (41.1)	D (E)
NW 95 Street On-Ramp	Merge	9,165 (9,299)	0.97 (1.00)	38.9 (40.6)	E (E)
NW 95 Street On-Ramp to NW 81 St Off-Ramp	Ramp Overlap	9,165 (9,299)	0.97 (1.00)	38.9 (40.6)	E (E)
NW 81 Street Off-Ramp	Diverge	9,165 (9,299)	0.97 (1.00)	36.3 (37.8)	E (E)
NW 81 Street Off-Ramp to NW 79 St On-Ramp	Basic	8,432 (8,229)	0.86 (0.89)	39.4 (35.7)	E (E)
NW 79 Street On-Ramp to NW 69 St Off-Ramp	Weaving	9,527 (9,308)	0.71 (0.80)	59.3 (43.7)	F (E)
NW 62 Street Off-Ramp	Diverge	9,487 (8,745)	0.84 (0.86)	67.2 (51.0)	F (F)
NW 62 Street Off-Ramp to NW 62 Street On-Ramp	Basic	8,458 (7,595)	0.70 (0.70)	78.1 (66.6)	F (F)
NW 62 Street On-Ramp	Merge	10,099 (9,084)	0.79 (0.80)	73.7 (70.7)	F (F)
NW 62 Street On-Ramp to SR 112/I-195 Off-Ramp	Basic	10,099 (9,084)	0.60 (0.60)	97.0 (95.9)	F (F)
SR 112/I-195 Off-Ramp	Diverge	10,099 (9,084)	1.00 (1.00)	41.1 (41.2)	E (E)
SR 112/I-195 Off-Ramp to SR 112/I-195 On-Ramp	Basic	7,488 (6,583)	0.74 (0.73)	27.1 (26.3)	D (D)
SR 112/I-195 On-Ramp	Merge	9,774 (8,527)	1.00 (1.00)	46.3 (44.1)	E (E)
Managed Lanes Egress	Merge	13,321 (11,614)	0.97 (0.97)	64.7 (50.9)	E (E)
Managed Lanes Egress to SR 836 Off-Ramp	Basic	13,321 (11,614)	0.64 (0.64)	23.4 (23.1)	C (C)
SR 836 Off-Ramp	Diverge	13,321 (11,614)	0.97 (0.97)	39.7 (38.1)	E (E)
I-395 Off-Ramp	Diverge	9,685 (8,833)	0.70 (0.74)	26.0 (27.0)	C (C)
NW 8 Street Off-Ramp	Diverge	8,206 (7,748)	0.79 (0.86)	32.3 (35.2)	D (E)
NW 8 Street Off-Ramp to I-395/SR 836 On-Ramp	Basic	6,760 (6,311)	0.66 (0.69)	23.0 (24.7)	C (C)
I-395/SR 836 On-Ramp	Merge	9,326 (9,409)	0.71 (0.74)	28.5 (31.5)	D (D)
I-395/SR 836 On-Ramp to SW 7 Street Off-Ramp	Basic	9,326 (9,409)	0.71 (0.74)	25.5 (26.9)	C (D)
SW 7 Street Off-Ramp	Diverge	9,326 (9,409)	0.71 (0.74)	27.6 (29.2)	C (D)
Downtown Distributor Off-Ramp	Diverge	7,496 (7,292)	0.57 (0.58)	22.9 (23.2)	C (C)
Downtown Distributor Off-Ramp to NW 2 Street On-Ramp	Basic	4,828 (4,589)	0.49 (0.48)	17.1 (16.8)	B (B)
NW 2 Street On-Ramp	Merge	5,387 (5,514)	0.57 (0.60)	21.7 (20.6)	C (C)
Downtown Distributor On-Ramp	Merge	5,820 (6,612)	0.63 (0.70)	23.9 (45.9)	C (F)
Downtown Distributor On-Ramp to SW 8 Street On-Ramp	Basic	5,820 (6,612)	0.63 (0.67)	21.9 (64.9)	C (F)
SW 8 Street On-Ramp	Merge	6,131 (6,917)	0.67 (0.68)	27.3 (80.4)	C (F)
SW 8 Street On-Ramp to SW 26 Road Off-Ramp	Basic	6,131 (6,917)	0.66 (0.66)	35.7 (90.7)	E (F)
SW 26 Road Off-Ramp	Diverge	6,131 (6,917)	0.99 (0.99)	44.3 (45.6)	E (E)
SW 26 Road Off-Ramp to US 1	Basic	3,722 (3,975)	0.60 (0.58)	20.8 (19.9)	C (C)

Legend: AM (PM)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 4 summarizes the southbound AM and PM HCS results for Segment 2 (Broward County Line to NW 95 Street). The results indicate that nine (9) of the 36 segments are anticipated to operate at LOS E or worse during one (1) or both of the peak periods, as highlighted in blue.

Table 4: I-95 SB Segment 2 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
Broward County Line to Ives Dairy Road Off-Ramp	Basic	8,014 (7963)	1.00 (1.00)	45.3 (44.6)	F (E)
Ives Dairy Road Off-Ramp	Diverge	8,014 (7,963)	1.00 (1.00)	40.0 (40.3)	E (E)
Ives Dairy Road Off-Ramp to Ives Dairy Road On-Ramp	Basic	6,289 (5,738)	0.59 (0.55)	20.3 (18.8)	C (C)
Ives Dairy Rd On-Ramp	Merge	7,765 (7,079)	0.99 (0.91)	53.9 (40.9)	E (E)
Ives Dairy Rd On-Ramp to Managed Lanes Ingress	Basic	7,765 (7,079)	0.99 (0.91)	44.3 (37.4)	E (E)
Managed Lanes Ingress	Diverge	7,765 (7,079)	0.99 (0.91)	40.4 (36.8)	E (E)
Managed Lanes Ingress to Miami Gardens Drive	Basic	5,782 (5,345)	0.74 (0.70)	27.0 (24.8)	D (C)
Miami Gardens Drive Off-Ramp	Diverge	5,782 (5,345)	0.74 (0.70)	28.7 (27.4)	D (C)
Miami Gardens Drive Off-Ramp to Miami Gardens Drive On-Ramp	Basic	4,986 (4,081)	0.64 (0.54)	22.4 (18.8)	C (C)
Miami Gardens Drive On-Ramp	On Ramp	5,826 (4,714)	0.76 (0.63)	269.1 (23.9)	E (C)
Miami Gardens Drive On-Ramp to Managed Lanes Egress	Basic	5,826 (4,714)	0.76 (0.63)	34.8 (22.2)	D (C)
Managed Lanes Egress	Merge	7,179 (4,980)	0.95 (0.66)	63.4 (26.0)	E (C)
Managed Lanes Egress to Turnpike/SR 826 Off-Ramp	Basic	7,179 (4,980)	0.72 (0.50)	25.7 (17.2)	C (B)
Florida Turnpike/SR 826 Off-Ramp	Diverge	7,179 (4,980)	0.72 (0.50)	29.1 (18.9)	D (B)
Florida Turnpike/SR 826 Off-Ramp to SR 7/US 441 On-Ramp	Basic	4,017 (3,219)	0.53 (0.43)	18.5 (15.0)	C (B)
SR 7/US 441 On-Ramp	Merge	4,817 (4,252)	0.65 (0.59)	26.4 (23.6)	C (C)
SR 7/US 441 On-Ramp to NW 167 Street On-Ramp	Basic	4,817 (4,252)	0.65 (0.59)	23.1 (21.1)	C (C)
NW 167 Street On-Ramp	Merge	5,152 (4,624)	0.69 (0.64)	359.3 (95.3)	E (E)
NW 167 Street On-Ramp to Florida Turnpike/SR 826 On-Ramp	Basic	5,152 (4,624)	0.69 (0.64)	31.0 (28.2)	D (D)
Florida Turnpike/SR 826 On-Ramp	Merge	9,292 (8,548)	0.74 (0.71)	38.2 (32.8)	E (D)
Florida Turnpike/SR 826 On-Ramp to Managed Lanes Ingress	Basic	9,292 (8,548)	0.74 (0.71)	26.7 (25.2)	D (C)
Managed Lanes Ingress	Diverge	9,292 (8,548)	0.74 (0.71)	27.8 (26.8)	C (C)
Managed Lanes Ingress to NW 151 Street On-Ramp	Basic	8,008 (7,102)	0.64 (0.59)	22.2 (20.5)	C (C)
NW 151 Street On-Ramp	Merge	8,417 (8,050)	0.68 (0.69)	25.9 (26.2)	C (C)
NW 151 Street On-Ramp to Opa Locka Boulevard Off-Ramp	Overlap	8,417 (8,050)	0.68 (0.69)	25.9 (26.2)	C (D)
Opa Locka Boulevard Off-Ramp	Diverge	8,417 (8,050)	0.68 (0.69)	24.7 (25.3)	C (C)
Opa Locka Boulevard Off-Ramp to NW 135 Street On-Ramp	Basic	8,158 (7,343)	0.66 (0.63)	23.3 (22.0)	C (C)
NW 135 Street On-Ramp to NW 125 Street Off-Ramp	Weaving	8,871 (7,977)	0.63 (0.60)	27.1 (27.7)	C (C)
NW 125 Street Off-Ramp to NW 125 Street On-Ramp	Basic	8,170 (6,957)	0.68 (0.61)	24.2 (21.3)	C (C)
NW 125 Street On-Ramp	Merge	8,474 (7,646)	0.71 (0.68)	27.0 (25.6)	C (C)
NW 125 Street On-Ramp to NW 119 Street On-Ramp	Basic	8,474 (7,646)	0.71 (0.68)	25.6 (24.2)	C (C)
NW 119 Street On-Ramp	Merge	9,596 (8,418)	0.83 (0.77)	32.3 (29.8)	D (D)
NW 119 Street On-Ramp to NW 103 Street Off-Ramp	Basic	9,596 (8,418)	0.83 (0.77)	31.6 (28.2)	D (D)
NW 103 Street Off-Ramp	Diverge	9,596 (8,418)	0.83 (0.77)	31.5 (28.4)	D (D)
NW 103 Street Off-Ramp to NW 103 Street On-Ramp	Basic	8,151 (7,569)	0.71 (0.69)	25.3 (24.5)	C (C)
NW 103 Street On-Ramp to NW 95 Street Off-Ramp	Weaving	9,178 (8,397)	0.70 (0.68)	34.5 (32.0)	D (D)

Legend: AM (PM)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Synchro Intersection Capacity Operational Analysis

Trafficware's *Synchro* (Version 9.1) software package was used to conduct analyses for ramp-terminal and adjacent intersections along the study area. Results were reported using the HCM 2010 output when possible, otherwise results were reported using the HCM 2000 output. The following sections summarize the operational analysis results for each interchange area along the corridor. Intersection ID numbers were used to denote each intersection in a manner that is consistent with the Synchro operations model. The MOEs used in the analysis included LOS, delay, and queue length. The intersection analyses are presented in **Appendix B**.

Table 5 summarizes the intersection capacity analysis results for the AM and PM peak hours at the SR 5/US 1/South Dixie Highway interchange. The results indicate that the intersection is anticipated to operate at LOS F for the AM peak period and LOS E for the PM peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 5: SR 5/US 1/S Dixie Highway – Intersection Analysis Results

IID	Roadway	Intersecting Road	Intersection Delay (s)		LOS	
			AM	PM	AM	PM
101	SW 16 Ave	SR 5/US 1/S Dixie Hwy	154.6	64.6	F	E

Source: Synchro (Version 9.1) results

Table 6 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 5/US 1/S Dixie Highway intersection with SW 16 Avenue. The results indicate that the projected 95th percentile queue lengths exceed available storage for four (4) of the five (5) approach lane movements for at least one (1) peak period. The lanes in which queues are anticipated to exceed capacity have been shaded in blue.

Table 6: SR 5/US-1/S Dixie Highway – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	95th Pt. Queue (ft)	
						AM	PM
101	SW 16 Ave	SR 5/US 1/S Dixie Hwy	EB(3)	L	165(1)	225	1,425
				T	585(2)	1,775	725
			WB(3)	T/R	-	950	1,175
			SB	L	130(2)	4,025	1,050
				R	95(2)	1,175	1,450

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(3) US 1 is aligned east-west through the SW 16 Avenue intersection. The EB approach corresponds to US 1 NB and the WB approach corresponds to US 1 SB,
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 7 summarizes the intersection analysis results for the AM and PM peak hours at the SR 913/SW 26 Road/SW 25 Road interchange. The results indicate that three (3) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 7: SR 913/SW 26 Road/SW 25 Road – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
201	SW 26 Rd	SB Off-Ramp	(4)		(4)	
202	SW 26 Rd	NB On-Ramp	(5)		(5)	
203	SW 26 Rd	Miami Ave	66.3	42.0	E	D
204	SW 26 Rd	Brickell Ave	24.0	27.8	C	C
205(+)	SW 25 Rd	SB Off-Ramp	42.7	72.8	D	E
206(+)	SW 25 Rd	NB On-Ramp	166.7	117.1	F	F

Source: Synchro (Version 9.1) results
(4) Unsignalized intersection
(5) Intersection sign configuration not allowed in HCM analysis
(+) HCM 2000 results

Table 8 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 913/SW 26 Road/SW 25 Road interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 24 approach lane movements for at least

one (1) peak period. The lanes in which queues are anticipated to exceed capacity have been shaded in blue.

Table 8: SR 913/SW 26 Road/SW 25 Road – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
203	SW 26 Rd	Miami Ave	EB	L	150(1)	75	75
				T	670 (2)	975	525
			WB	L	90(1)	150	250
				T	290(2)	175	250
			NB	L	175(1)	425	675
				T	540(2)	100	100
			SB	L	145(1)	50	75
				T	260(2)	100	125
204	SW 26 Rd	Brickell Ave	EB	L	105(1)	375	300
				T	290(2)	400	350
			WB	T	-	200	375
			NB	T	735(2)	550	225
				R	735(2)	650	525
			SB	L	185(6)	100	125
				T	-	225	550
205(+)	SW 25 Rd	SB Off-Ramp	EB	T	100(2)	825	275
			WB	T	150(2)	75	275
			SB	T	1,000(7)	825	1,175
206(+)	SW 25 Rd	NB On-Ramp	EB	L	120(2)	525	225
				T	120(2)	350	425
			WB	T	300(2)	300	450
				R	300(2)	1,200	1,100
			NB	L	245(2)	75	125
				T	245(2)	1,150	275

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(6) Available storage length measured from the stop bar to the end of dual left-turn lanes
(7) Available storage length measured from stop bar to gore
(+) Synchro result
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection.

Table 9 summarizes the intersection analysis results for the AM and PM peak hours at the SR 90/SW 7 Street/SW 8 Street interchange. The results indicate that six (6) of the eight (8) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 9: SR 90/SW 7 Street/SW 8 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
301	SW 8 St / US 41 /SR 90	SW 5 Ave	122.9	63.4	F	E
302	SW 8 St / US 41 /SR 90	SW 4 Ave/SB Ramps	51.1	26.5	D	C
303	SW 8 St / US 41 /SR 90	NB On-Ramp 170	(8)		(8)	
304	SW 8 St / US 41 /SR 90	SW 3 Ave NB Ramps	202.7	146.3	F	F
305(+)	SW 8 St / US 41 /SR 90	SW 2 Ave	59.5	45.3	E	D
306(+)	SW 7 St / US 41 /SR 90	SW 4 Ave/SB Ramps	80.9	123.3	F	F
307	SW 7 St / US 41 /SR 90	SW 3 Ave NB Ramps	84.9	106.8	F	F
308	SW 7 St / US 41 /SR 90	SW 2 Ave	105.9	77.4	F	E

Source: Synchro (Version 9.1) results
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 10 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 90/SW 7 Street/SW 8 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 21 of the 35 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 10: SR 90/SW 7 Street/SW 8 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
301	SW 8 St / US 41 / SR 90	SW 5 Ave	EB	L	500(2)	750	775
				T	500(2)	675	700
				R	500(2)	700	675
			NB	T/R	-	3,000	1,525
302	SW 8 St / US 41 / SR 90	SW 4 Ave / SB Ramps	EB	T	500(2)	1,925	400
				R	70(1)	2,125	475
			SB	L	290(2)	675	525
				T	290(2)	450	550
304	SW 8 St / US 41 / SR 90	SW 3 Ave / NB Ramps	EB	L	440(2)	1,050	800
				T	440(2)	275	600
			NB	T	-	1,800	1,450
				R	180(9)	675	375
			SB	L	135(8)	100	50
				T	280(2)	3,800	3,350
305(+)	SW 8 St / US 41 / SR 90	SW 2 Ave	EB	T	475(2)	900	525
				R	150(1)	50	175
			NB	T	180	250	150
			SB	T	275(1)	675	525
306(+)	SW 7 St / US 41 / SR 90	SW 4 Ave / SB Ramps	WB	L	465(2)	150	425
				T	465(2)	200	575
			SB	T	220(2)	425	200
			SWB	L	-	1,100	1,125
				R	-	825	1,300
307	SW 7 St / US 41 / SR 90	SW 3 Ave NB Ramps	WB	L	475(2)	250	775
				T	475(2)	125	200
				R	475(2)	150	200
			NB	L	135(8)	2,150	2,675
				T	140(1)	175	200

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
308	SW 7 St / US 41 / SR 90	SW 2 Ave	WB	L	500(2)	200	450
				T	485(2)	175	350
				R	485(2)	175	350
			NB	L	270(2)	100	175
				T	285(2)	400	400
			SB	T	-	1,675	1,625
				R	-	1,650	1,525

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(8) Free flow, uncontrolled intersection
(9) Available storage length is average of dual lanes; from stop bar to end of taper, and from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection.

Table 11 summarizes the intersection analysis results for the AM and PM peak hours at the SR 970/Downtown Distributor interchange. The results indicate that four (4) of the nine (9) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 11: SR 970/Downtown Distributor – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
401(+)	SW 3 St	Miami Ave	63.2	48.2	E	D
402	SE 4 St/SR 970 EB Off-Ramp	Fort Dallas Park Dr	42.1	45.9	D	D
403(+)	SR 970 Off-Ramp	SE 2 Ave	62.6	22.5	E	C
404(+)	SR 970 Off-Ramp	Miami Ave	13.7	17.0	B	B
405	SR 970 On-Ramp	SE 2 Ave	(5)		(5)	
406	SW 2 St	Miami Ave	125.8	21.5	F	C
407	NB On-Ramp	Miami Ave	(8)		(8)	
408	SE 2 St	SE 1 Ave	314.0	144.2	F	F
409	SE 2 St	SE 2 Ave	24.0	20.5	C	C

Source: Synchro (Version 9.1) results
(5) Intersection sign configuration not allowed in HCM analysis
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 12 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 970/Downtown Distributor interchanges. The results indicate that the projected 95th percentile queue lengths exceed available storage for 14 of the 21 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 12: SR 970/Downtown Distributor – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
401(+)	SW 3 St	Miami Ave	EB	T	315(2)	75	125
			NB	L	105(1)	475	400
			SB	L	50(2)	225	625
				T	320(2)	125	350
402	SE 4 St/ SR 970 EB Off-Ramp	Fort Dallas Park Dr	SB	L	30	75	25
403(+)	SR 970 Off-Ramp	SE 2 Ave	EB	T	700(7)	850	325
				R	700(7)	700	325
			SB	T	280(2)	450	275
404(+)	SR 970 Off-Ramp	Miami Ave	EB	R	625(7)	175	400
			SB	T	220(2)	125	125
406	SW 2 St	Miami Ave	WB	L	475(7)	2,850	700
				T	475(2)	2,325	600
			SB	T	240(2)	150	100
408	SE 2 St	SE 1 Ave	WB	T	475(2)	475	475
				R	475(2)	475	625
			NB	L	275(2)	7,775	4,100
				T	275(2)	425	625
409(+)	SE 2 St	SE 2 Ave	WB	L	335(2)	275	300
				T	335(2)	500	250
			SB	T	230(2)	150	400
				R	225(2)	75	425

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(+) Synchro result

Table 13 summarizes the intersection analysis results for the AM and PM peak hours at the NW 2 Street interchange. The results indicate that one (1) of the four (4) intersections is anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 13: NW 2 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
501	NW 2 St	NW 3 Ct/SB On-Ramp	23.7	30.5	C	C
502(+)	NW 2 St	NW 3 Ave/Off-Ramp	85.4	30.1	F	C
503	NW 3 St	NW 3 Ct	2.8	13.2	A	B
504	NW 3 St	NW 3 Ave	18.2	20.9	B	C

Source: Synchro (Version 9.1) results
(+)HCM 2000 Results

Table 14 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 2 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 24 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 14: NW 2 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	95 Pt. Queue (ft)	
						AM	PM
501	NW 2 St	NW 3 Ct/SB On-Ramp	EB	T	500(2)	50	50
				R	500(2)	125	100
			WB	L	145(2)	75	250
			SB	L	240(1)	350	50
				T	290(2)	500	550
502(+)	NW 2 St	NW 3 Ave/Off-Ramp	EB	L	145(2)	50	50
				T	145(2)	225	25
			WB	T	440(2)	50	200
				R	440(2)	0	75
			NB	T	-	1,100	475
			NWB	L	320(2)	75	125
				R	225(7)	175	75
503	NW 3 St	NW 3 Ct	WB	L	145(2)	100	150
				T	145(2)	100	175
			SB	L	170(1)	25	125
				T	290(2)	25	325
				R	290(2)	25	375
504	NW 3 St	NW 3 Ave	EB	L	490(2)	125	125
				T	490(2)	550	225
			WB	T	145(2)	100	250
				R	145(2)	300	400
			NB	L	280(2)	225	475
				T	280(2)	150	350
				R	50(1)	100	25

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection
(+) Synchro result

Table 15 summarizes the intersection analysis results for the AM and PM peak hours at the NW 8 Street interchange. The results indicate that both intersections are anticipated to operate at LOS E for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 15: NW 8 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
601	NW 8 St	NW 3 Ct/Off-Ramp	72.1	16.6	E	B
602	NW 8 St	NW 3 Ave/On-Ramp	20.2	68.1	C	E

Source: Synchro (Version 9.1) results

Table 16 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 8 Street interchange. The results indicate that the projected 95th percentile queue lengths exceeded available storage for six (6) of the 12 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 16: NW 8 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
601	NW 8 St	NW 3 Ct/Off-Ramp	EB	R	135(2)	1,875	425
			WB	L	230(2)	75	75
				T	230(2)	100	125
			SB	L	-	125	275
				T	-	75	225
				R	125(1)	100	250
602	NW 8 St	NW 3 Ave/On-Ramp	EB	L	255(2)	200	825
				T	240(2)	400	325
			WB	R	490(2)	375	700
			NB	L	200(1)	25	25
				T	285(2)	375	675
				R	250(1)	50	50

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 17 summarizes the intersection analysis results for the AM and PM peak hours at the NW 62 Street interchange. The results indicate that three (3) of the four (4) intersections are anticipated to operate at LOS F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 17: NW 62 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
701	NW 62 St	SR 7/NW 7 Ave	52.3	118.9	D	F
702	NW 62 St	SB Ramps	544.0	352.7	F	F
703	NW 62 St	NB Ramps	214.2	253.8	F	F
704	NW 62 St	NW 2 Ave	25.6	37.6	C	D

Source: Synchro (Version 9.1) results

Table 18 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 62 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 31 of the 36 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 18: NW 62 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
701	NW 62 St	SR 7/NW 7 Ave	EB	L	120(1)	200	675
				T	585(2)	1,125	1,000
				R	600(2)	1,150	1,025
			WB	L	145(1)	200	675
				T	425(2)	475	1,375
				R	425(2)	500	1,375
			NB	L	145	200	100
				T	610(2)	450	675
				R	610(2)	450	700
			SB	L	130	175	225
				T	215(2)	625	500
				R	215(2)	650	500
702	NW 62 St	SB Ramps	EB	T	305(2)	1,375	800
				R	305(2)	1,725	925
			WB	L	210(2)	5,125	4,550
				T	200(2)	175	425
			SB	L	245	800	450
				R	245	500	2,175
703	NW 62 St	NB Ramps	EB	L	180(2)	2,450	725
				T	180(2)	175	175
			WB	T	595(2)	825	550
				R	595(2)	1,000	700
			NB	L	-	2,625	4,175
				R	585	2,175	3,775
704	NW 62 St	NW 2 Ave	EB	L	80(1)	75	150
				T	-	550	800
				R	260(2)	575	825
			WB	L	110(1)	50	50
				T	280(2)	375	475
				R	270(2)	375	500
			NB	L	70(1)	150	300
				T	580(2)	175	650
				R	110(1)	50	125
			SB	L	60(1)	50	75
				T	255(2)	250	300
				R	60	225	275

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 19 summarizes the intersection analysis results for the AM and PM peak hours at the SR 934/NW 79 Street/NW 81 Street interchange. The results indicate that four (4) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 19: SR 934/NW 79 Street/NW 81 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
901	NW 79 St / SR 934	SR 7/NW 7 Ave	35.2	66.5	D	E
902(+)	NW 79 St / SR 934	SB Ramps/NW 6th Ct	26.0	26.4	C	C
903(+)	NW 79 St / SR 934	NB Ramps/NW 6th Ave	162.6	68.3	F	E
904	NW 81 St	SR 7/NW 7 Ave	27.3	71.2	C	E
905(+)	NW 81 St	SB Ramps/NW 6th Ct	18.0	17.8	B	B
906(+)	NW 81 St	NB Ramps/NW 6th Ave	70.1	28.9	E	C

Source: Synchro (Version 9.1) results
(+) HCM 2000 results

Table 20 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 934/NW 79 Street/NW 81 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 20 of the 35 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 20: SR 934/NW 79 Street/NW 82 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
901	NW 79 St/SR 934	SR 7/NW 7 Ave	EB	L	250	175	625
				T	595(2)	850	925
				R	595(2)	875	950
			WB	L	160(1)	100	125
				T	260(2)	150	225
				R	260(2)	175	225
			NB	L	120	175	75
				T	595(2)	325	875
				R	345(1)	350	975
			SB	L	160	325	500
				T	275(2)	700	425
				R	275(2)	225	100
902(+)	NW 79 St/SR 934	SB Ramps/NW 6 Ct	EB	T	225(2)	325	475
				R	225(2)	175	150
			WB	T	265(2)	125	75
			SB	L	475(2)	275	375
				T	585(2)	700	725
				R	585(2)	50	50
903(+)	NW 79 St/SR 934	NB Ramps/NW 6 Ave	EB	L	190(1)	225	225
				T	250(2)	150	175
			WB	T	265(2)	850	800
			NB	T	-	825	500
				R	800(7)	400	400
904	NW 81 St	SR 7/NW 7 Ave	WB	L	250(2)	725	425
				T	250(2)	300	150
				R	250(2)	1,175	3,025
			NB	L	190	25	25
				T	590(2)	100	250
			SB	T	590(2)	475	125
				R	590(2)	525	650
905(+)	NW 81 St	SB Ramps/NW 6 Ct	WB	T	290(2)	100	125
			SB	T	910(7)	400	425
906(+)	NW 81 St	NB Ramps/NW 6 Ave	WB	T	280(2)	475	500
				R	280(2)	1,125	300
			NB	T	585(2)	150	275

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection
(+) Synchro results

Table 21 summarizes the intersection analysis results for the AM and PM peak hours at the NW 95 Street interchange. The results indicate that all three (3) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 21: NW 95 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1001	NW 95 St	SR 7/NW 7 Ave	57.8	103.4	E	F
1002	NW 95 St	SB Ramps	11.2	487.7	B	F
1003	NW 95 St	NB Ramps	102.6	145.9	F	F

Source: Synchro (Version 9.1) results

Table 22 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 95 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 17 of the 23 observed approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 22: NW 95 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1001	NW 95 St	SR 7/NW 7 Ave	EB	L	115(1)	100	600
				T	595(2)	775	775
				R	90(1)	150	200
			WB	L	140(1)	350	725
				T	235(2)	275	675
				R	235(2)	75	350
			NB	L	160	375	150
				T	-	275	1,825
				R	-	400	2,100
			SB	L	150	300	175
				T	430(2)	1,275	200
				R	430(2)	1,475	200
1002	NW 95 St	SB Ramps	EB	T	210(2)	25	150
			WB	L	260(2)	450	250
				T	260(2)	0	100
			SB	L	1,065(7)	225	950
				R	1,065(7)	250	2,775
1003	NW 95 St	NB Ramps	EB	L	275(2)	2,225	1,150
				T	275(2)	100	125
			WB	T	275(2)	625	475
				R	275(2)	625	550
			NB	LT	1,025(7)	525	725
				R	270(2)	1,000	3,125

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 23 summarizes the intersection analysis results for the AM and PM peak hours at the SR 932/NW 103 Street interchange. The results indicate all four (4) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 23: SR 932/NW 103 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1101	NW 103 St	SR 7/NW 7 Ave	94.3	176.3	F	F
1102	NW 103 St	SB Ramps	196.5	64.6	F	E
1103	NW 103 St	NB Ramps	123.4	59.7	F	E
1104	NW 103 St	NW 5 Ave	84.0	38.5	F	D

Source: Synchro (Version 9.1) results

Table 24 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 932/NW 103 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 22 of the 32 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 24: SR 932/NW 103 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1101	NW 103 St	SR 7/NW 7 Ave	EB	L	360(1)	825	1,275
				T	595(2)	700	575
				R	595(2)	1,125	1,000
			WB	L	180(1)	200	100
				T	245(2)	425	850
				R	205(2)	475	925
			NB	L	115	100	550
				T	-	225	2,475
				R	-	250	2,775
			SB	L	125	250	300
				T	575(2)	1,650	300
				R	575(2)	1,850	300
1102	NW 103 St	SB Ramps	EB	T	230(2)	425	25
			WB	L	210(2)	2,575	100
				T	210(2)	200	0
			SB	L	1,005(7)	3,425	925
				R	1,005(7)	700	1,425
1103	NW 103 St	NB Ramps	EB	L	215(2)	2,900	1,725
				T	215(2)	50	225
			WB	T	125(2)	250	375
				R	125(2)	175	300
			NB	L	865(7)	275	300
				LT	190(7)	275	300
				R	200(2)	275	275
1104	NW 103 St	NW 5 Ave	EB	L	175	50	75
				T	425(2)	250	125
				TR	425(2)	250	250
			WB	L	200(1)	75	100
				T	985(2)	275	275
				TR	985(2)	300	275
			NB	L	205(2)	1,975	1,250
			SB	L	280(2)	350	225

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore point
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 25 summarizes the intersection analysis results for the AM and PM peak hours at the SR 924/NW 119 Street interchange. The results indicate that one (1) of the four (4) intersections is anticipated to operate at LOS F for both the AM and PM peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 25: SR 924/NW 119 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1201	NW 119 St / SR 924	SR 7/NW 7 Ave	134.2	155.0	F	F
1202	NW 119 St / SR 924	SB On-Ramp	(8)		(8)	
1203	NW 119 St / SR 924	NB Off-Ramp	23.9	24.9	C	C
1204	NW 119 St / SR 924	NW 5 Ave	7.9	5.3	A	A

Source: Synchro (Version 9.1) results
(8) Free flow, uncontrolled intersection

Table 26 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 924/NW 119 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for nine (9) of the 28 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 26: SR 924/NW 119 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1201	NW 119 St/SR 924	SR 7/NW 7 Ave	EB	L	305(1)	600	1,350
				T	555(2)	475	500
				R	585(2)	525	550
			WB	L	250(1)	125	125
				T	555(2)	1,050	475
				R	-	1,175	525
			NB	L	290(1)	200	1,575
				T	-	200	1,975
				R	-	200	2,175
			SB	L	155(1)	125	175
				T	215(2)	2,350	400
				R	-	2,725	400
1203	NW 119 St/SR 924	NB Off-Ramp	EB	L	115(1)	250	175
				T	570(2)	275	225
			WB	T	600(2)	575	600
				R	600(2)	600	625
			NB	L	-	525	325
				R	-	125	500
1204	NW 119 St/SR 924	NW 5 Ave	EB	L	175	25	25
				T	595(2)	25	25
				R	595(2)	25	25
			WB	L	175	25	25
				T	-	25	25
				R	-	25	25
			NB	L	125(1)	200	125
				R	205(2)	125	200
			SB	L	120	25	25
				R	245(2)	275	100

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 27 summarizes the intersection analysis results for the AM and PM peak hours at the SR 922/NW 125 Street interchange. The results indicate all three (3) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 27: SR 922/NW 125 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1301	NW 125 St	SR 7	25.1	96.9	C	F
1302	NW 125 St	SB Ramps	25.4	72.2	C	E
1303	NW 125 St	NB Ramps	72.9	61.0	E	E

Source: Synchro (Version 9.1) results

Table 28 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 922/NW 125 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 24 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 28: SR 922/NW 125 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1301	NW 125 St	SR 7/NW 7 Ave	EB	L	145(1)	50	75
				T	590(2)	125	100
				R	145(1)	125	125
			WB	L	225(1)	450	350
				T	245(2)	450	600
				R	245(2)	200	1,475
			NB	L	200(1)	25	25
				T	-	225	1,550
				R	-	250	1,775
			SB	L	205(1)	300	400
				T	-	550	100
				R	250(2)	625	100
1302	NW 125 St	SB Ramps	EB	T	270(2)	250	275
				R	270(2)	275	325
			WB	L	230(2)	150	825
				T	235(2)	100	125
			SB	LT	960(2)	1,000	1,950
				R	200	250	350
1303	NW 125 St	NB Ramps	EB	L	220(2)	275	200
				T	220(2)	250	175
			WB	T	-	1,625	1,500
				R	-	2,050	1,975
			NB	LT	1,010(7)	450	450
				TR	265(2)	500	375

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 29 summarizes the intersection analysis results for the AM and PM peak hours at the SR 916/NW 135 Street/NW 136 Street interchange. The results indicate that five (5) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 29: SR 916/NW 135 Street/NW 136 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1401	NW 135 St / SR 916	SR 7/NW 7 Ave	18.4	481.6	B	F
1402(+)	NW 135 St / SR 916	SB Ramps	53.1	212.4	D	F
1403(+)	NW 135 St / SR 916	NB Ramps	108.0	71.7	F	E
1404	Opa Locka Blvd / SR 916	SR 7/NW 7 Ave	113.5	96.8	F	F
1405(+)	Opa Locka Blvd / SR 916	SB Ramps	8.6	10.2	A	B
1406(+)	Opa Locka Blvd / SR 916	NB Ramps	36.9	93.9	D	F

Source: Synchro (Version 9.1) results
(+) HCM 2000 results

Table 30 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 916/NW 135 Street/NW 136 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 11 of the 28 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 30: SR 916/NW 135 Street/NW 136 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1401	NW 135 St/SR 916	SR 7/NW 7 Ave	EB	L	205(1)	175	200
				T	-	450	5,125
				R	255(1)	175	775
			NB	T	280(2)	175	1,550
				R	280(2)	350	1,900
			SB	L	130(1)	250	3,100
				T	245(2)	475	150
1402(+)	NW 135 St/SR 916	SB Ramps	EB	T	305(2)	600	275
				R	215(2)	50	25
			SB	L	320(9)	100	250
				T	450(2)	75	225
1403(+)	NW 135 St/SR 916	NB Ramps	EB	L	205(2)	175	175
				T	205(2)	25	50
			NB	T	950(7)	1,100	600
				R	-	550	450
1404	Opa Locka Blvd/SR 916	SR 7/NW 7 Ave	WB	L	290(2)	350	300
				T	290(2)	425	300
				R	290(2)	100	150
			NB	L	205(1)	300	2,400
				T	445(2)	100	75
			SB	T	-	2,325	250
				R	-	2,725	250
1405(+)	Opa Locka Blvd/SR 916	SB Ramps	WB	L	190(2)	0	25
				T	190(2)	100	25
			SB	T	1100(7)	150	275
1406(+)	Opa Locka Blvd/SR 916	NB Ramps	WB	T	385(2)	350	275
				R	250(1)	625	850
			NB	T	475(2)	475	375

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(9) Available storage length is average of dual lanes; from stop bar to end of taper, and from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 31 summarizes the intersection analysis results for the AM and PM peak hours at the NW 151 Street interchange. The results indicate that all three (3) observed intersections are anticipated to operate at LOS D or better for both AM and PM peak periods.

Table 31: NW 151 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1501	NW 151 St	SR 7	21.0	27.9	C	C
1502	NW 151 St	SB On-Ramp	(5)		(5)	
1503	NW 151 St	NB Off-Ramp	22.4	27.2	C	C

Source: Synchro (Version 9.1) results
(5) Intersection sign configuration not allowed in HCM analysis

Table 32 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 151 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for four (4) of the 18 observed approach lane movements for at least one (1) peak period.

Table 32: NW 151 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1501	NW 151 St	SR 7/NW 7 Ave	EB	L	150(1)	100	350
				T	-	75	200
				R	150(1)	75	200
			WB	L	260(1)	375	325
				T	580(2)	200	75
				R	580(2)	225	225
			NB	L	120(1)	25	25
				T	-	175	375
				R	-	175	375
			SB	L	135(1)	75	200
				T	-	400	125
				R	-	450	125
1503	NW 151 St	NB Off-Ramp	EB	L	210(2)	50	200
				T	220(2)	50	75
			WB	R	-	50	100
			NB	L	895(7)	225	450
				T	895(7)	450	625
				R	-	150	275

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore

Table 33 summarizes the intersection analysis results for the AM and PM peak hours at the Golden Glades Park and Ride Lot/South Express Ramps interchange. The results indicate that three (3) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 33: Golden Glades Park & Ride Lot/SB Express Ramps – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1601	SR 7	GGI SB Off-Ramp	7.7	8.1	A	A
1602	SR 7	Park and Ride Dr/NW 16000 Blk	13.4	13.9	B	B
1603(+)	NW 167 St	NW 2 Ave	184.3	265.7	F	F
1604	NW 167 St	Miami Ave	78.9	27.0	E	C
1605	NW 7 Ave Ext	Turnpike NB On-Ramp	(8)		(8)	
1606(+)	NW 7 Ave Ext	NW 4 Ave & NW 171 St	41.2	103.2	D	F

Source: Synchro (Version 9.1) results
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 34 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the Golden Glades Park and Ride Lot/South Express Ramps interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 10 of the 39 approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 34: Golden Glades Park & Ride Lot/SB Express Ramps – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1601	SR 7/NW 7 Ave	GGI SB Off-Ramp	WB	L	530(11)	100	150
			NB	T	-	225	25
			SB	T	470(2)	225	25
1602	SR 7/NW 7 Ave	Park and Ride Dr/NW 16000 Blk	EB	L	260(2)	25	25
				T	260(2)	25	25
			WB	L	85	25	25
				T	85	25	25
			NB	L	230(1)	125	75
				T	-	350	275
			SB	L	150(1)	25	25
				T	-	525	125
1603(+)	SR 826/NW 167 St	NW 2 Ave	EB	L	230(10)	975	775
				T	-	1,250	1,150
				R	290(1)	1,050	375
			WB	L	310(1)	75	75
				T	1,225(2)	1,900	2,125
				R2	220(1)	0	50
			NB	L	500(2)	2,050	2,150
				T	500(2)	200	175
			SB	T	610(1)	700	1,050
1604	SR 826/NW 167 St	Miami Ave	EB	L	275(1)	1,600	150
				T	-	625	450
				R	-	675	475
			WB	L	315(1)	100	75
				T	-	1,075	650
				R	-	1,225	700
			NB	L	180(1)	425	450
				R	155(1)	300	375
			SB	L	-	150	125
				R	105(1)	1,150	275
1606(+)	NW 7 Ave Ext at NW 4 Ave	NW 171 St	NB	L	-	125	250
			SEB	T	-	550	150
				R	-	100	100
			NWB	T	-	400	500
			NEB	L	270(1)	50	675
				T	-	425	550
			SWB	L	200(1)	100	75
				T	-	450	950
				R	300(1)	0	25

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 35 summarizes the results for the signalized intersection analyses for the AM and PM peak hours at the SR 860/NE 183 Street/Miami Gardens Drive interchange. The results indicate that two (2) of the three (3) observed intersections are anticipated to operate at F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 35: SR 860/NE 183 Street/Miami Gardens Drive – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay(s)		LOS	
			AM	PM	AM	PM
1701	Miami Gardens Dr / SR 860	NE 2 Ct	23.1	33.3	C	C
1702	Miami Gardens Dr / SR 860	SB Ramps	103.4	102.2	F	F
1703(+)	Miami Gardens Dr / SR 860	NB Ramps	43.6	54.8	D	D

Source: Synchro (Version 9.1) results
(+) HCM 2000 results

Table 36 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 860/NE 183 Street/Miami Gardens interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for five (5) of the 22 observed approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 36: SR 860/NE 181 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1701	Miami Gardens Dr/SR 860	NE 2 Ct	EB	L	165(1)	75	50
				T	245(2)	775	650
				R	245(2)	850	700
			WB	L	230(1)	100	50
				T	-	400	550
				R	-	425	600
			NB	L	110(1)	25	75
				R	720(2)	175	625
			SB	L	-	150	225
				R	-	150	250
1702	Miami Gardens Dr/SR 860	SB Ramps	EB	L	480(1)	50	125
				T	-	1,675	1,025
			WB	L	175(2)	100	75
				T	805(2)	250	375
			NB	L	165(12)	975	1,425
				R	-	425	375
			SB	L	100(12)	300	250
				T	-	1,050	1,250
1703(+)	Miami Gardens Dr/SR 860	NB Ramps	EB	L	410(12)	300	375
			WB	T	-	900	825
			SB	L	275	625	500
				R	345(1)	0	50

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(12) Available storage length measured from the stop bar to the end of dual left-turn lanes
(+) HCM 2000 results

Table 37 summarizes the intersection analysis results for the AM and PM peak hours at the Ives Dairy Road interchange. The results indicate that one (1) of the four (4) intersections are anticipated to operate at LOS F for both the AM and PM peak periods. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 37: Ives Dairy Road – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1801	Ives Dairy Rd	NE 16 Ave	14.1	16.3	B	B
1802	Ives Dairy Rd	SB Ramps	40.4	38.3	D	D
1803	Ives Dairy Rd	NB Ramps	24.8	31.4	C	C
1804	Ives Dairy Rd	Highland Lakes Blvd	106.8	93.3	F	F

Source: Synchro (Version 9.1) results

Table 38 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the Ives Dairy Road interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 32 observed approach lane movements for at least one (1) peak period. The lane approach movements in which queues are anticipated to exceed storage have been shaded in blue.

Table 38: Ives Dairy Road – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1801	Ives Dairy Rd	NE 16 Ave	EB	L	145(1)	25	75
				T	260(2)	725	300
				R	260(2)	850	325
			WB	L	370(1)	400	50
				T	-	100	500
				R	-	125	600
			NB	L	100(1)	50	125
				T	-	0	25
				R	75(1)	100	650
			SB	L	-	200	150
				R	-	75	150
1802	Ives Dairy Rd	SB Ramps	EB	T	555(10)	475	450
			WB	L	380(2)	600	775
				T	380(2)	500	900
			SB	L	-	825	850
1803	Ives Dairy Rd	NB Ramps	EB	L	395(2)	300	500
				T	395(2)	25	25
			WB	T	395(10)	775	1,075
			NB	L	500	300	475
				R	455(10)	0	175
1804	Ives Dairy Rd	Highland Lakes Blvd	EB	L	580(1)	1,675	1,225
				T	800(2)	1,200	700
				R	725(2)	0	0
			WB	L	355(1)	75	75
				T	-	1,275	1,575
				R	-	1,425	1,800
			NB	L	380(13)	1,075	925
				T	-	475	0
				R	-	475	0
			SB	L	260(10)	25	50
				T	-	225	200
				R	270(1)	1,875	1,675

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(10) Available storage length is average of dual left turn lanes; measured from stop bar to each respective end of taper
(13) Available storage length is average of dual lanes, and shared through-left lane; measured from stop bar to point of convergence upstream

CONCLUSION

Capacity analyses were performed to assess the future (2045) No-Build operational conditions of the intersections, freeway corridor, and interchange influence areas within the study corridor. Capacity analyses were conducted with software based on HCM (2000/2010 Editions). Density, LOS, delay and queue length were among the MOEs used in the evaluation of the corridor's operations. The results indicate failures along I-95 during both the AM peak and the PM peak. Every interchange had at least 1 failing intersection other than the NW 151st St interchange which had multiple failing movements. The interchanges that experience the most concentrated failure in the No-Build analysis are the NW 95 Street interchange and the SR 932/NW 103 Street interchange which sustain failures in all but one (1) intersection peak scenario. Also, the NW 62 Street interchange notably experiences queue failures at nearly every movement. The results indicate that two-thirds of interchanges experience the majority of its intersections failing during one (1) or both of the peak periods.

Appendix A
HCS Freeway Analyses

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 NorthBound	**Analysis Period**	AM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 0.000	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 8.112		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Southern Section of I95 NB Corridor- (MM 0.000 to 8.112) From START of Project on SR 9A/I-95 Mainline to NW 95 ST-2045 No_Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**8.47700**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	US 1/I-95 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3834	Level	3365	1.95	0.00	2	70
2	-	WB Rcknbckr Cswy ONR	On Ramp	1500	Level	5932	2.94	0.00	2	70
3	WB Rcknbckr Cswy ONR	SW 8 Street OFR	Basic Segment	129	Level	5932	2.94	0.00	3	70
4	-	SW 8 Street OFR	Off Ramp	1500	Level	5932	2.94	0.00	3	70
5	SW 8 Street OFR	SW 8 Street ONR Esc	Basic Segment	938	Level	5649	3.05	0.00	3	70
6	SW 8 Street ONR ESC	SW 8 Street ONR WSC	On Ramp	317	Level	6597	3.04	0.00	3	70
7	SW 8 Street ONR WSC	SR 970/Dwtwn Dst OFR	Weaving	3206	Level	7578	3.07	0.00	4	70
8	NW 2 Street OFR	SR 970/Dwtwn Dst ONR	Basic Segment	77	Level	5836	3.77	0.00	3	70
9	SR 970 ONR	I-395 OFR	Weaving	2768	Level	8036	4.64	0.00	5	70
10	I-395 OFR	SR 836 OFR	Basic Segment	127	Level	6323	3.66	0.00	4	70
11	-	SR 836 OFR	Off Ramp	1500	Level	6323	3.66	0.00	3	70
12	SR 836 OFR	NW 8 Street ONR	Basic Segment	25	Level	4289	4.40	0.00	3	70
13	-	NW 8 Street ONR	On Ramp	1500	Level	5528	4.78	0.00	3	70
14	-	I-395 Flyover OFR	Off Ramp	1500	Level	5528	4.78	0.00	3	70
15	I-395 Flyover OFR	I-395/SR 836 ONR	Basic Segment	718	Level	5528	4.78	0.00	3	70
16	-	I-395/SR 836 ONR	On Ramp	1500	Level	8492	4.15	0.00	3	70
17	I-395 Flyover ONR	I-95 Mngd Lns Ingres	Weaving	2935	Level	8492	4.15	0.00	6	70
18	-	I-195/SR 112 OFR	Off Ramp	1500	Level	6181	5.70	0.00	4	70
19	I-195/SR 112 OFR	I-195/SR 112 ONR	Basic Segment	3821	Level	4037	8.00	0.00	3	70
20	-	I-195/SR 112 ONR	On Ramp	1500	Level	5153	6.98	0.00	3	70
21	I-195/SR 112 ONR	NW 62 Street OFR	Basic Segment	1192	Level	5153	6.98	0.00	5	70
22	-	NW 62 Street OFR	Off Ramp	1500	Level	5153	6.98	0.00	4	70
23	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	2135	Level	4331	7.70	0.00	4	70
24	-	NW 62 Street ONR	On Ramp	1500	Level	5556	6.86	0.00	4	70
25	-	WB NW 69 Street ONR	On Ramp	815	Level	5909	6.61	0.00	4	70
26	WB NW 69 Street ONR	NW 79 Street OFR	Ramp Overlap	685	Level	5909	6.61	0.00	4	70
27	-	NW 79 Street OFR	Off Ramp	815	Level	5909	6.61	0.00	4	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	2567	4.24	0.00	2	1500	50
4	Off Ramp	283	0.74	0.00	1	190	50
6	On Ramp	948	2.95	0.00	1	717	50
11	Off Ramp	2034	2.09	0.00	1	1500	50
13	On Ramp	1239	6.08	0.00	1	250	50
14	Off Ramp	0	0.00	0.00	1	205	50
16	On Ramp	2964	2.98	0.00	2	1500	50
18	Off Ramp	2144	1.37	0.00	2	285	50
20	On Ramp	1116	3.29	0.00	2	1500	50
22	Off Ramp	822	3.17	0.00	1	1500	50
24	On Ramp	1225	3.87	0.00	1	685	50
25	On Ramp	353	2.65	0.00	1	800	50
27	Off Ramp	1188	6.34	0.00	1	148	50
29	On Ramp	1197	3.95	0.00	1	1065	50
31	Off Ramp	878	3.65	0.00	1	450	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
7	0.050	981	3.31	0.00	1	50	1742	0.75	0.00	2	50
9	0.050	2200	6.97	0.00	2	50	1713	8.28	0.00	1	50
17	0.050	0	0.00	0.00	1	50	2311	0.00	0.00	2	50

28	NW 79 Street OFR	NW 81 Street ONR	Basic Segment	2364	Level	4721	6.67	0.00	4	70
29	-	NW 81 Street ONR	On Ramp	1315	Level	5918	6.12	0.00	4	70
30	NW 81 Street ONR	NW 95 Street OFR	Ramp Overlap	201	Level	5918	6.12	0.00	4	70
31	-	NW 95 Street OFR	Off Ramp	1315	Level	5918	6.12	0.00	4	70
32	EB NW 95 Street OFR	I-95 Mainline	Basic Segment	25	Level	5040	6.55	0.00	4	70

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
7	TwoSide	2206	0	0	0	4
9	TwoSide	2540	0	0	0	4
17	TwoSide	2200	0	0	0	3

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	V (v h
1	US 1/I-95 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3365	3360	4800	4754	0.71	0.71	0	67.1	25.3	25.0	0.65	0.62	0.0	0.0	610.9	610.0	9.1	0
2	-	WB Rcknbckr Cswy ONR	On Ramp	5932	4740	4800	4730	1.25	1.00	0	52.3	45.6	44.9	0.33	0.24	0.1	6.7	421.3	336.6	6.4	1
3	WB Rcknbckr Cswy ONR	SW 8 Street OFR	Basic Segment	5932	4740	7200	7096	0.84	0.67	0	65.3	24.6	24.2	0.02	0.02	0.0	0.0	36.2	29.0	0.4	0
4	-	SW 8 Street OFR	Off Ramp	5932	4740	7200	7096	0.84	0.67	0	58.7	27.3	26.9	0.29	0.24	0.0	0.0	421.3	336.6	5.7	0
5	SW 8 Street OFR	SW 8 Street ONR Esc	Basic Segment	5649	4500	7200	7092	0.80	0.63	0	68.4	22.3	21.9	0.16	0.15	0.0	0.0	250.9	199.9	2.9	0
6	SW 8 Street ONR ESC	SW 8 Street ONR WSC	On Ramp	6597	5460	7200	7092	0.93	0.77	0	61.0	30.2	29.8	0.06	0.05	0.0	0.0	99.0	82.0	1.3	0
7	SW 8 Street ONR WSC	SR 970/Dwtwn Dst OFR	Weaving	7578	6420	7463	7350	1.03	0.87	0	62.7	22.2	21.9	0.58	0.52	0.1	0.1	1150.3	974.6	15.5	1
8	NW 2 Street OFR	SR 970/Dwtwn Dst ONR	Basic Segment	5836	4980	7200	7067	0.83	0.70	0	67.2	25.2	24.7	0.01	0.01	0.0	0.0	21.3	18.2	0.3	0
9	SR 970 ONR	I-395 OFR	Weaving	8036	7080	7511	7341	1.09	0.96	0	62.4	21.9	21.4	0.50	0.45	0.1	0.4	1053.2	927.9	14.9	1
10	I-395 OFR	SR 836 OFR	Basic Segment	6323	5580	9600	9428	0.67	0.59	0	69.3	20.5	20.1	0.02	0.02	0.0	0.0	38.0	33.6	0.5	0
11	-	SR 836 OFR	Off Ramp	6323	5580	7200	7071	0.89	0.79	0	26.3	72.1	70.8	0.65	0.24	0.4	0.4	449.1	396.3	15.1	9
12	SR 836 OFR	NW 8 Street ONR	Basic Segment	4289	3780	7200	7045	0.61	0.54	0	57.3	22.5	22.0	0.00	0.00	0.0	0.0	5.1	4.5	0.1	0
13	-	NW 8 Street ONR	On Ramp	5528	4980	7200	7032	0.79	0.71	0	60.4	28.0	27.3	0.28	0.24	0.0	0.0	392.6	353.7	5.9	0
14	-	I-395 Flyover OFR	Off Ramp	5528	4980	7200	7032	0.79	0.71	0	59.4	28.6	27.9	0.29	0.24	0.0	0.0	392.6	353.7	6.0	0
15	I-395 Flyover OFR	I-395/SR 836 ONR	Basic Segment	5528	4980	7200	7032	0.79	0.71	0	67.1	25.3	24.7	0.12	0.12	0.0	0.0	187.9	169.3	2.5	0
16	-	I-395/SR 836 ONR	On Ramp	8492	7080	7200	7054	1.20	1.00	0	45.6	52.4	51.3	0.37	0.24	0.1	3.5	603.1	502.8	11.0	3
17	I-395 Flyover ONR	I-95 Mngd Lns Ingres	Weaving	8492	7080	11573	11338	0.75	0.62	0	63.9	10.8	10.6	0.52	0.48	0.0	0.0	1180.1	983.9	15.4	1
18	-	I-195/SR 112 OFR	Off Ramp	6181	5160	9600	9334	0.66	0.55	0	62.2	21.3	20.7	0.27	0.24	0.0	0.0	439.0	366.5	5.9	0
19	I-195/SR 112 OFR	I-195/SR 112 ONR	Basic Segment	4037	3360	7200	6923	0.58	0.49	0	69.9	16.7	16.0	0.62	0.62	0.0	0.0	730.4	607.9	8.7	0
20	-	I-195/SR 112 ONR	On Ramp	5153	4440	7200	6957	0.74	0.64	0	64.0	23.7	22.9	0.27	0.24	0.0	0.0	366.0	315.3	4.9	0
21	I-195/SR 112 ONR	NW 62 Street OFR	Basic Segment	5153	4440	12000	11595	0.44	0.38	0	69.3	13.3	12.8	0.20	0.19	0.0	0.0	290.8	250.6	3.6	0
22	-	NW 62 Street OFR	Off Ramp	5153	4440	9600	9276	0.56	0.48	0	65.1	17.6	17.0	0.26	0.24	0.0	0.0	366.0	315.3	4.8	0
23	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	4331	3780	9600	9244	0.47	0.41	0	69.7	14.1	13.5	0.35	0.35	0.0	0.0	437.8	382.1	5.5	0
24	-	NW 62 Street ONR	On Ramp	5556	4980	9600	9282	0.60	0.54	0	63.9	20.0	19.3	0.27	0.24	0.0	0.0	394.6	353.7	5.5	0
25	-	WB NW 69 Street ONR	On Ramp	5909	5340	9600	9293	0.64	0.57	0	64.3	21.4	20.7	0.14	0.13	0.0	0.0	228.0	206.1	3.2	0

26	WB NW 69 Street ONR	NW 79 Street OFR	Ramp Overlap	5909	5340	9600	9293	0.64	0.57	0	63.8	21.6	20.9	0.12	0.11	0.0	0.0	191.7	173.2	2.7
27	-	NW 79 Street OFR	Off Ramp	5909	5340	9600	9293	0.64	0.57	0	63.8	21.6	20.9	0.15	0.13	0.0	0.0	228.0	206.1	3.2
28	NW 79 Street OFR	NW 81 Street ONR	Basic Segment	4721	4260	9600	9290	0.51	0.46	0	69.5	15.8	15.3	0.39	0.38	0.0	0.0	528.4	476.8	6.9
29	-	NW 81 Street ONR	On Ramp	5918	5460	9600	9315	0.64	0.59	0	64.2	21.8	21.1	0.23	0.21	0.0	0.0	368.5	340.0	5.3
30	NW 81 Street ONR	NW 95 Street OFR	Ramp Overlap	5918	5460	9600	9315	0.64	0.59	0	64.2	21.8	21.1	0.04	0.03	0.0	0.0	56.3	52.0	0.8
31	-	NW 95 Street OFR	Off Ramp	5918	5460	9600	9315	0.64	0.59	0	64.9	21.7	21.0	0.23	0.21	0.0	0.0	368.5	340.0	5.2
32	EB NW 95 Street OFR	I-95 Mainline	Basic Segment	5040	4620	9600	9295	0.54	0.50	0	68.3	17.5	16.9	0.00	0.00	0.0	0.0	6.0	5.5	0.1

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
US 1/I-95 Mainline-WB Rcknbckr Cswy ONR	Basic	0.71	67.1	25.3	25.0	0.65	0.62	0,610.9	0,610.0	9.08	0.37
--WB Rcknbckr Cswy ONR	OnRamp	1.25	52.3	45.6	44.9	0.33	0.24	0,421.3	0,336.6	6.43	1.63
WB Rcknbckr Cswy ONR-SW 8 Street OFR	Basic	0.84	65.3	24.6	24.2	0.02	0.02	0,036.2	0,029.0	0.44	0.03
--SW 8 Street OFR	OffRamp	0.84	58.7	27.3	26.9	0.29	0.24	0,421.3	0,336.6	5.74	0.93
SW 8 Street OFR-SW 8 Street ONR Esc	Basic	0.80	68.4	22.3	21.9	0.16	0.15	0,250.9	0,199.9	2.92	0.07
SW 8 Street ONR ESC-SW 8 Street ONR WSC	OnRamp	0.93	61.0	30.2	29.8	0.06	0.05	0,099.0	0,082.0	1.34	0.17
SW 8 Street ONR WSC-SR 970/Dwtwn Dst OFR	Weaving	1.03	62.7	22.2	21.9	0.58	0.52	1,150.3	0,974.6	15.55	1.63
NW 2 Street OFR-SR 970/Dwtwn Dst ONR	Basic	0.83	67.2	25.2	24.7	0.01	0.01	0,021.3	0,018.2	0.27	0.01
SR 970 ONR-I-395 OFR	Weaving	1.09	62.4	21.9	21.4	0.50	0.45	1,053.2	0,927.9	14.87	1.62
I-395 OFR-SR 836 OFR	Basic	0.67	69.3	20.5	20.1	0.02	0.02	0,038.0	0,033.6	0.48	0.01
--SR 836 OFR	OffRamp	0.89	26.3	72.1	70.8	0.65	0.24	0,449.1	0,396.3	15.08	9.42
SR 836 OFR-NW 8 Street ONR	Basic	0.61	57.3	22.5	22.0	0.00	0.00	0,005.1	0,004.5	0.08	0.01
--NW 8 Street ONR	OnRamp	0.79	60.4	28.0	27.3	0.28	0.24	0,392.6	0,353.7	5.86	0.80
--I-395 Flyover OFR	OffRamp	0.79	59.4	28.6	27.9	0.29	0.24	0,392.6	0,353.7	5.95	0.90
I-395 Flyover OFR-I-395/SR 836 ONR	Basic	0.79	67.1	25.3	24.7	0.12	0.12	0,187.9	0,169.3	2.52	0.10
--I-395/SR 836 ONR	OnRamp	1.20	45.6	52.4	51.3	0.37	0.24	0,603.1	0,502.8	11.03	3.85
I-395 Flyover ONR-I-95 Mngd Lns Ingres	Weaving	0.75	63.9	10.8	10.6	0.52	0.48	1,180.1	0,983.9	15.40	1.34
--I-195/SR 112 OFR	OffRamp	0.66	62.2	21.3	20.7	0.27	0.24	0,439.0	0,366.5	5.89	0.66
I-195/SR 112 OFR-I-195/SR 112 ONR	Basic	0.58	69.9	16.7	16.0	0.62	0.62	0,730.4	0,607.9	8.70	0.01
--I-195/SR 112 ONR	OnRamp	0.74	64.0	23.7	22.9	0.27	0.24	0,366.0	0,315.3	4.93	0.43
I-195/SR 112 ONR-NW 62 Street OFR	Basic	0.44	69.3	13.3	12.8	0.20	0.19	0,290.8	0,250.6	3.62	0.04
--NW 62 Street OFR	OffRamp	0.56	65.1	17.6	17.0	0.26	0.24	0,366.0	0,315.3	4.84	0.34
NW 62 Street OFR-NW	Basic	0.47	69.7	14.1	13.5	0.35	0.35	0,437.8	0,382.1	5.48	0.02

62 Street ONR											
--NW 62 Street ONR	OnRamp	0.60	63.9	20.0	19.3	0.27	0.24	0,394.6	0,353.7	5.53	0.48
--WB NW 69 Street ONR	OnRamp	0.64	64.3	21.4	20.7	0.14	0.13	0,228.0	0,206.1	3.20	0.26
WB NW 69 Street ONR-NW 79 Street OFR	RampOverlap	0.64	64.3	21.6	20.9	0.12	0.11	0,191.7	0,173.2	2.69	0.22
--NW 79 Street OFR	OffRamp	0.64	63.8	21.6	20.9	0.15	0.13	0,228.0	0,206.1	3.23	0.28
NW 79 Street OFR-NW 81 Street ONR	Basic	0.51	69.5	15.8	15.3	0.39	0.38	0,528.4	0,476.8	6.86	0.05
--NW 81 Street ONR	OnRamp	0.64	64.2	21.8	21.1	0.23	0.21	0,368.5	0,340.0	5.29	0.44
NW 81 Street ONR-NW 95 Street OFR	RampOverlap	0.64	64.2	21.8	21.1	0.04	0.03	0,056.3	0,052.0	0.81	0.07
--NW 95 Street OFR	OffRamp	0.64	64.9	21.7	21.0	0.23	0.21	0,368.5	0,340.0	5.24	0.38
EB NW 95 Street OFR-I-95 Mainline	Basic	0.54	68.3	17.5	16.9	0.00	0.00	0,006.0	0,005.5	0.08	0.00
Freeway			59.6	22.5	21.9	8.39	7.27	12,312.9	10,703.3	0,179.5	0,026.6

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Weaving	Basic	Weaving	Basic	Off Ramp	Basic	On Ramp	Off Ramp	Basic
1	C	E	C	C	C	D	C	C	C	C	E	C	C	D	C

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	On Ramp	Weaving	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Ramp Overlap	Off Ramp	Basic	On Ramp	Ramp Overlap
1	E	B	C	B	C	B	B	B	B	C	C	C	B	C	C

	Density-Based LOS by Segment	
Segment	31	32
Time Step	Off Ramp	Basic
1	C	B

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	F	.	.	.	.	F	.	F	.	.	.	.	.	.

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	F	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment	
Time Step	31	32
1	.	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 NorthBound	**Analysis Period**	PM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 0.000	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 8.112		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Southern Section of I95 NB Corridor- (MM 0.000 to 8.112) From START of Project on SR 9A/I-95 Mainline to NW 95 ST-2045 No-Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**8.70100**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	US 1/I-95 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3834	Level	2364	3.14	0.00	2	70
2	-	WB Rcknbckr Cswy ONR	On Ramp	1500	Level	4826	4.64	0.00	2	70
3	WB Rcknbckr Cswy ONR	SW 8 Street OFR	Basic Segment	129	Level	4826	4.64	0.00	3	70
4	-	SW 8 Street OFR	Off Ramp	1500	Level	4826	4.64	0.00	3	70
5	SW 8 Street OFR	SW 8 Street ONR ESC	Basic Segment	938	Level	4426	4.92	0.00	3	70
6	SW 8 Sreet ONR ESC	SW 8 Street ONR WSC	On Ramp	1500	Level	5423	4.76	0.00	3	70
7	SW 8 Street ONR WSC	SR 970/Dwtwn Ds OFR	Weaving	3206	Level	6466	4.36	0.00	4	70
8	NW 2 Street OFR	SR 970/Dwtwn Ds ONR	Basic Segment	77	Level	5175	4.22	0.00	3	70
9	SR 970 ONR	I-395 OFR	Weaving	2768	Level	7514	3.69	0.00	5	70
10	I-395 OFR	SR 836 OFR	Basic Segment	127	Level	6097	4.19	0.00	4	70
11	-	SR 836 OFR	Off Ramp	1500	Level	6097	4.19	0.00	3	70
12	SR 836 OFR	NW 8 Street ONR	Basic Segment	25	Level	5264	4.61	0.00	3	70
13	-	NW8 Street ONR	On Ramp	1500	Level	6718	4.14	0.00	3	70
14	-	I-395 Flyover OFR	Off Ramp	1500	Level	6718	4.14	0.00	3	70
15	I-395 Flyover OFR	I-395/SR 836 ONR	Basic Segment	718	Level	6718	4.14	0.00	3	70
16	-	I-395/SR 836 ONR	On Ramp	1500	Level	10398	3.88	0.00	3	70
17	I-395 Flyover ONR	I-95 Mngd Ln Ingress	Weaving	2935	Level	10398	3.88	0.00	6	70
18	-	I-195/SR 112 OFR	Off Ramp	1500	Level	7598	5.31	0.00	4	70
19	I-195/SR 112 OFR	I-195/SR 112 ONR	Basic Segment	3821	Level	4975	6.35	0.00	3	70
20	-	I-195/SR 112 ONR	On Ramp	1500	Level	6316	5.60	0.00	3	70
21	I-195/SR 112 ONR	NW 62 Street OFR	Basic Segment	1192	Level	6316	5.60	0.00	5	70
22	-	NW62 Street OFR	Off Ramp	1500	Level	6316	5.60	0.00	4	70
23	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	2135	Level	4707	6.45	0.00	4	70
24	-	NW 62 Street ONR	On Ramp	1500	Level	5482	5.71	0.00	4	70
25	-	WB NW 69 Street ONR	On Ramp	815	Level	5600	5.63	0.00	4	70
26	WB NW 69 Street ONR	NW 79 Street OFR	Ramp Overlap	685	Level	5600	5.63	0.00	4	70
27	-	NW 79 Street OFR	Off Ramp	815	Level	5600	5.63	0.00	4	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	2462	6.08	0.00	1	1500	50
4	Off Ramp	400	1.50	0.00	1	190	50
6	On Ramp	997	4.03	0.00	1	717	50
11	Off Ramp	833	1.52	0.00	1	1500	50
13	On Ramp	1454	2.43	0.00	1	250	50
14	Off Ramp	0	0.00	0.00	1	205	50
16	On Ramp	3680	3.41	0.00	2	1500	50
18	Off Ramp	2623	3.34	0.00	2	285	50
20	On Ramp	1341	2.83	0.00	2	1500	50
22	Off Ramp	1609	3.13	0.00	1	1500	50
24	On Ramp	775	1.20	0.00	1	685	50
25	On Ramp	118	2.15	0.00	1	800	50
27	Off Ramp	1082	2.39	0.00	1	148	50
29	On Ramp	1075	4.26	0.00	1	1065	50
31	Off Ramp	956	2.12	0.00	1	450	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
7	0.050	1043	2.26	0.00	1	50	1291	4.92	0.00	2	50
9	0.050	2339	2.54	0.00	2	50	1417	1.57	0.00	1	50
17	0.050	0	0.00	0.00	1	50	2800	0.00	0.00	2	50

28	NW 79 Street OFR	NW 81 Street ONR	Basic Segment	2364	Level	4518	6.41	0.00	4	70
29	-	NW 81 Street ONR	On Ramp	1315	Level	5593	5.99	0.00	4	70
30	NW 81 Street ONR	NW 95 Street OFR	Ramp Overlap	201	Level	5593	5.99	0.00	4	70
31	-	NW 95 Street OFR	Off Ramp	1315	Level	5593	5.99	0.00	4	70
32	OFR to EB NW 95 St	I-95 Mainline	Basic Segment	25	Level	4637	6.79	0.00	4	70

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
7	TwoSide	2206	0	0	0	4
9	TwoSide	2540	0	0	0	4
17	TwoSide	2200	0	0	0	3

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	V (v h
1	US 1/I-95 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	2364	2340	4800	4726	0.50	0.50	0	70.0	17.0	16.7	0.62	0.62	0.0	0.0	429.1	424.8	6.1	0
2	-	WB Rcknbckr Cswy ONR	On Ramp	4826	4440	4800	4691	1.03	0.95	0	55.5	40.4	39.5	0.31	0.24	0.1	1.4	342.8	315.3	5.7	1
3	WB Rcknbckr Cswy ONR	SW 8 Street OFR	Basic Segment	4826	4440	7200	7037	0.69	0.63	0	66.1	22.9	22.4	0.02	0.02	0.0	0.0	29.5	27.1	0.4	0
4	-	SW 8 Street OFR	Off Ramp	4826	4440	7200	7037	0.69	0.63	0	58.5	25.9	25.3	0.29	0.24	0.0	0.0	342.8	315.3	5.4	0
5	SW 8 Street OFR	SW 8 Street ONR ESC	Basic Segment	4426	4080	7200	7027	0.63	0.58	0	68.4	20.4	19.9	0.16	0.15	0.0	0.0	196.6	181.2	2.6	0
6	SW 8 Sreet ONR ESC	SW 8 Street ONR WSC	On Ramp	5423	5100	7200	7033	0.77	0.73	0	61.3	28.3	27.6	0.28	0.24	0.0	0.0	385.2	362.2	5.9	0
7	SW 8 Street ONR WSC	SR 970/Dwtwn Ds OFR	Weaving	6466	6120	7463	7304	0.89	0.84	0	62.9	20.8	20.3	0.58	0.52	0.1	0.1	981.5	929.0	14.8	1
8	NW 2 Street OFR	SR 970/Dwtwn Ds ONR	Basic Segment	5175	4920	7200	7051	0.73	0.70	0	67.4	24.8	24.3	0.01	0.01	0.0	0.0	18.9	17.9	0.3	0
9	SR 970 ONR	I-395 OFR	Weaving	7514	7014	7525	7389	1.02	0.95	218	30.8	45.6	44.8	1.02	0.45	0.6	1.4	984.8	919.3	29.9	1
10	I-395 OFR	SR 836 OFR	Basic Segment	6097	5657	9600	9403	0.65	0.60	127	53.0	26.7	26.1	0.03	0.02	0.0	0.0	36.7	34.0	0.6	0
11	-	SR 836 OFR	Off Ramp	6097	5479	7200	7052	0.86	0.78	1500	39.6	46.1	45.1	0.43	0.24	0.2	0.2	433.0	389.1	9.8	4
12	SR 836 OFR	NW 8 Street ONR	Basic Segment	5264	4701	7200	7038	0.75	0.67	25	25.8	60.8	59.4	0.01	0.00	0.0	0.0	6.2	5.6	0.2	0
13	-	NW8 Street ONR	On Ramp	6718	6036	7200	7054	0.95	0.86	1500	36.0	55.9	54.7	0.47	0.24	0.2	0.2	477.1	428.7	11.9	5
14	-	I-395 Flyover OFR	Off Ramp	6718	5931	7200	7054	0.95	0.84	1500	31.6	62.6	61.4	0.54	0.24	0.3	0.3	477.1	421.2	13.3	7
15	I-395 Flyover OFR	I-395/SR 836 ONR	Basic Segment	6718	5880	7200	7054	0.95	0.83	718	29.0	67.6	66.3	0.28	0.12	0.2	0.2	228.4	199.9	6.9	4
16	-	I-395/SR 836 ONR	On Ramp	10398	7080	7200	7063	1.47	1.00	0	36.8	64.7	63.5	0.46	0.24	0.2	16.2	738.5	502.8	13.7	6
17	I-395 Flyover ONR	I-95 Mngd Ln Ingress	Weaving	10398	7080	11585	11365	0.91	0.62	0	63.6	8.9	8.8	0.52	0.48	0.0	0.0	1445.0	983.9	15.5	1
18	-	I-195/SR 112 OFR	Off Ramp	7598	5160	9600	9352	0.81	0.55	0	59.9	22.1	21.5	0.28	0.24	0.0	0.0	539.6	366.5	6.1	0
19	I-195/SR 112 OFR	I-195/SR 112 ONR	Basic Segment	4975	3360	7200	6978	0.71	0.48	0	69.9	16.5	16.0	0.62	0.62	0.0	0.0	900.1	607.9	8.7	0
20	-	I-195/SR 112 ONR	On Ramp	6316	4740	7200	7004	0.90	0.68	0	63.4	25.4	24.7	0.27	0.24	0.0	0.0	448.6	336.6	5.3	0
21	I-195/SR 112 ONR	NW 62 Street OFR	Basic Segment	6316	4740	12000	11673	0.54	0.41	0	69.3	14.1	13.7	0.20	0.19	0.0	0.0	356.5	267.5	3.9	0
22	-	NW62 Street OFR	Off Ramp	6316	4740	9600	9338	0.68	0.51	0	62.1	19.6	19.1	0.27	0.24	0.0	0.0	448.6	336.6	5.4	0
23	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	4707	3540	9600	9300	0.51	0.38	0	69.6	13.1	12.7	0.35	0.35	0.0	0.0	475.8	357.9	5.1	0
24	-	NW 62 Street ONR	On Ramp	5482	4320	9600	9334	0.59	0.46	0	64.7	17.1	16.6	0.26	0.24	0.0	0.0	389.3	306.8	4.7	0
25	-	WB NW 69 Street ONR	On Ramp	5600	4440	9600	9337	0.60	0.48	0	65.1	17.5	17.0	0.14	0.13	0.0	0.0	216.1	171.3	2.6	0
	WB NW																				

26	69 Street ONR	NW 79 Street OFR	Ramp Overlap	5600	4440	9600	9337	0.60	0.48	0	64.1	17.8	17.3	0.12	0.11	0.0	0.0	181.6	144.0	2.2	0
27	-	NW 79 Street OFR	Off Ramp	5600	4440	9600	9337	0.60	0.48	0	64.1	17.8	17.3	0.14	0.13	0.0	0.0	216.1	171.3	2.7	0
28	NW 79 Street OFR	NW 81 Street ONR	Basic Segment	4518	3540	9600	9302	0.49	0.38	0	69.6	13.1	12.7	0.39	0.38	0.0	0.0	505.7	396.2	5.7	0
29	-	NW 81 Street ONR	On Ramp	5593	4620	9600	9321	0.60	0.50	0	64.9	18.2	17.7	0.23	0.21	0.0	0.0	348.2	287.7	4.4	0
30	NW 81 Street ONR	NW 95 Street OFR	Ramp Overlap	5593	4620	9600	9321	0.60	0.50	0	64.7	18.4	17.9	0.04	0.03	0.0	0.0	53.2	44.0	0.7	0
31	-	NW 95 Street OFR	Off Ramp	5593	4620	9600	9321	0.60	0.50	0	64.7	18.4	17.9	0.23	0.21	0.0	0.0	348.2	287.7	4.4	0
32	OFR to EB NW 95 St	I-95 Mainline	Basic Segment	4637	3840	9600	9285	0.50	0.41	0	68.2	14.6	14.1	0.00	0.00	0.0	0.0	5.5	4.5	0.1	0

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
US 1/I-95 Mainline-WB Rcknbckr Cswy ONR	Basic	0.50	70.0	17.0	16.7	0.62	0.62	0,429.1	0,424.8	6.07	0.00
--WB Rcknbckr Cswy ONR	OnRamp	1.03	55.5	40.4	39.5	0.31	0.24	0,342.8	0,315.3	5.68	1.17
WB Rcknbckr Cswy ONR-SW 8 Street OFR	Basic	0.69	66.1	22.9	22.4	0.02	0.02	0,029.5	0,027.1	0.41	0.02
--SW 8 Street OFR	OffRamp	0.69	58.5	25.9	25.3	0.29	0.24	0,342.8	0,315.3	5.39	0.89
SW 8 Street OFR-SW 8 Street ONR ESC	Basic	0.63	68.4	20.4	19.9	0.16	0.15	0,196.6	0,181.2	2.65	0.06
SW 8 Sreet ONR ESC-SW 8 Street ONR WSC	OnRamp	0.77	61.3	28.3	27.6	0.28	0.24	0,385.2	0,362.2	5.91	0.74
SW 8 Street ONR WSC-SR 970/Dwtwn Ds OFR	Weaving	0.89	62.9	20.8	20.3	0.58	0.52	0,981.5	0,929.0	14.76	1.49
NW 2 Street OFR-SR 970/Dwtwn Ds ONR	Basic	0.73	67.4	24.8	24.3	0.01	0.01	0,018.9	0,017.9	0.27	0.01
SR 970 ONR-I-395 OFR	Weaving	1.02	30.8	45.6	44.8	1.02	0.45	0,984.8	0,919.3	29.89	16.76
I-395 OFR-SR 836 OFR	Basic	0.65	53.0	26.7	26.1	0.03	0.02	0,036.7	0,034.0	0.64	0.16
--SR 836 OFR	OffRamp	0.86	39.6	46.1	45.1	0.43	0.24	0,433.0	0,389.1	9.82	4.26
SR 836 OFR-NW 8 Street ONR	Basic	0.75	25.8	60.8	59.4	0.01	0.00	0,006.2	0,005.6	0.22	0.14
--NW8 Street ONR	OnRamp	0.95	36.0	55.9	54.7	0.47	0.24	0,477.1	0,428.7	11.91	5.78
--I-395 Flyover OFR	OffRamp	0.95	31.6	62.6	61.4	0.54	0.24	0,477.1	0,421.2	13.35	7.33
I-395 Flyover OFR-I-395/SR 836 ONR	Basic	0.95	29.0	67.6	66.3	0.28	0.12	0,228.4	0,199.9	6.90	4.04
--I-395/SR 836 ONR	OnRamp	1.47	36.8	64.7	63.5	0.46	0.24	0,738.5	0,502.8	13.67	6.48
I-395 Flyover ONR-I-95 Mngd Ln Ingress	Weaving	0.91	63.6	8.9	8.8	0.52	0.48	1,445.0	0,983.9	15.48	1.43
--I-195/SR 112 OFR	OffRamp	0.81	59.9	22.1	21.5	0.28	0.24	0,539.6	0,366.5	6.12	0.88
I-195/SR 112 OFR-I-195/SR 112 ONR	Basic	0.71	69.9	16.5	16.0	0.62	0.62	0,900.1	0,607.9	8.70	0.02
--I-195/SR 112 ONR	OnRamp	0.90	63.4	25.4	24.7	0.27	0.24	0,448.6	0,336.6	5.31	0.50
I-195/SR 112 ONR-NW 62 Street OFR	Basic	0.54	69.3	14.1	13.7	0.20	0.19	0,356.5	0,267.5	3.86	0.04
--NW62 Street OFR	OffRamp	0.68	62.1	19.6	19.1	0.27	0.24	0,448.6	0,336.6	5.42	0.61
NW 62 Street OFR-NW 62 Street ONR	Basic	0.51	69.6	13.1	12.7	0.35	0.35	0,475.8	0,357.9	5.14	0.03

--NW 62 Street ONR	OnRamp	0.59	64.7	17.1	16.6	0.26	0.24	0,389.3	0,306.8	4.74	0.36
--WB NW 69 Street ONR	OnRamp	0.60	65.1	17.5	17.0	0.14	0.13	0,216.1	0,171.3	2.63	0.19
WB NW 69 Street ONR -NW 79 Street OFR	RampOverlap	0.60	65.1	17.8	17.3	0.12	0.11	0,181.6	0,144.0	2.21	0.16
--NW 79 Street OFR	OffRamp	0.60	64.1	17.8	17.3	0.14	0.13	0,216.1	0,171.3	2.67	0.22
NW 79 Street OFR-NW 81 Street ONR	Basic	0.49	69.6	13.1	12.7	0.39	0.38	0,505.7	0,396.2	5.70	0.04
--NW 81 Street ONR	OnRamp	0.60	64.9	18.2	17.7	0.23	0.21	0,348.2	0,287.7	4.43	0.32
NW 81 Street ONR-NW 95 Street OFR	RampOverlap	0.60	64.9	18.4	17.9	0.04	0.03	0,053.2	0,044.0	0.68	0.05
--NW 95 Street OFR	OffRamp	0.60	64.7	18.4	17.9	0.23	0.21	0,348.2	0,287.7	4.45	0.34
OFR to EB NW 95 St-I-95 Mainline	Basic	0.50	68.2	14.6	14.1	0.00	0.00	0,005.5	0,004.5	0.07	0.00
Freeway			51.4	25.0	24.4	9.59	7.46	12,986.3	10,544.1	0,205.1	0,054.5

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Weaving	Basic	Weaving	Basic	Off Ramp	Basic	On Ramp	Off Ramp	Basic
1	B	E	C	C	C	D	C	C	F	D	F	F	F	F	F

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	On Ramp	Weaving	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Ramp Overlap	Off Ramp	Basic	On Ramp	Ramp Overlap
1	E	A	C	B	C	B	B	B	B	B	B	B	B	B	C

	Density-Based LOS by Segment	
Segment	31	32
Time Step	Off Ramp	Basic
1	B	B

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	F	.	.	.	.	.	.	F	.	.	.	.	.	.

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	F	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment	
Time Step	31	32
1	.	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 NorthBound	**Analysis Period**	AM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 8.112	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 17.260		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Northern Section of I95 NB Corridor- (MM 8.112 to 17.260) From NW 95 ST to END of Project I95 Broward County Line-2045 No-Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.58700**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	1560	Level	6160	5.13	0.00	4	70
2	NW 95 Street	NW 103 Street OFR	Weaving	1775	Level	7095	4.82	0.00	5	70
3	NW103 Street OFR	NW 103 Street ONR	Basic Segment	1760	Level	6589	5.03	0.00	4	70
4	-	NW 103 Street ONR	On Ramp	1326	Level	7779	4.70	0.00	4	70
5	NW103 Street ONR	NW 119 Street OFR	Ramp Overlap	201	Level	7779	4.70	0.00	4	70
6	-	NW 119 Street OFR	Off Ramp	1326	Level	7779	4.70	0.00	4	70
7	NW 119 Street OFR	NW125 Street OFR	Basic Segment	507	Level	6514	5.00	0.00	4	70
8	-	NW 125 Street OFR	Off Ramp	1500	Level	6514	5.00	0.00	4	70
9	NW 125 Street OFR	NW125 Street ONR	Basic Segment	1725	Level	5838	5.23	0.00	4	70
10	NW 125 Street ONR	NW 135 Street OFR	Weaving	2140	Level	6865	4.80	0.00	5	70
11	NW 135 Street OFR	Opa Locka Blvd ONR	Basic Segment	1740	Level	5722	5.10	0.00	4	70
12	Opa Locka Blvd ONR	NW 151 Street OFR	Weaving	3650	Level	6662	4.38	0.00	5	70
13	Opa Locka Blvd ONR	NW6 Avenue OFR	Basic Segment	25	Level	6398	4.46	0.00	4	70
14	-	Managed Lanes Egress	On Ramp	1500	Level	7718	3.70	0.00	4	70
15	Managed Lanes Egress	NB Turnpike OFR	Basic Segment	370	Level	7718	3.70	0.00	5	70
16	-	NB Turnpike OFR	Off Ramp	1500	Level	7718	3.70	0.00	3	70
17	-	NW167 Street OFR	Off Ramp	1500	Level	3870	3.82	0.00	3	70
18	NW 167 Street OFR	NB SR 7/US-441 OFR	Basic Segment	1182	Level	3452	3.82	0.00	3	70
19	-	NB SR 7/US-441 OFR	Off Ramp	1500	Level	3452	3.82	0.00	3	70
20	NB SR 7/US-441 OFR	NB SR 7/US-441 ONR	Basic Segment	1542	Level	2392	3.07	0.00	3	70
21	-	NB SR 7/US-441 ONR	On Ramp	1500	Level	5388	4.18	0.00	3	70
22	NB SR 7/US-441 ONR	End 4-Lane Section	Basic Segment	1599	Level	5388	4.18	0.00	4	70
23	Begin 3-Lane Section	Managed Lane Ingress	Basic Segment	1008	Level	5388	4.18	0.00	3	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
4	On Ramp	1190	2.87	0.00	1	850	50
6	Off Ramp	1265	3.15	0.00	1	148	50
8	Off Ramp	676	2.94	0.00	1	195	50
14	On Ramp	1320	0.00	0.00	1	1500	50
16	Off Ramp	3848	3.57	0.00	2	1500	50
17	Off Ramp	418	3.80	0.00	1	155	50
19	Off Ramp	1060	5.52	0.00	1	265	50
21	On Ramp	2996	5.06	0.00	2	1500	50
24	Off Ramp	730	0.00	0.00	1	450	40
25	Off Ramp	800	6.53	0.00	1	230	50
27	On Ramp	1105	2.25	0.00	1	1500	50
29	On Ramp	293	0.00	0.00	1	1500	50
31	Off Ramp	901	2.93	0.00	1	1500	50
33	On Ramp	2200	2.37	0.00	1	1500	50

24	-	Managed Lane Ingress	Off Ramp	1500	Level	5388	4.18	0.00	3	70
25	-	Miami Gardens Dr OFR	Off Ramp	1500	Level	4658	4.83	0.00	3	70
26	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	1294	Level	3858	4.48	0.00	3	70
27	-	Miami Gardens Dr ONR	On Ramp	1500	Level	4963	3.98	0.00	3	70
28	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	855	Level	4963	3.98	0.00	4	70
29	-	Managed Lane Egress	On Ramp	1500	Level	5256	3.76	0.00	4	70
30	Managed Lane Egress	Ives Dairy Road OFR	Basic Segment	1853	Level	5256	3.76	0.00	5	70
31	-	Ives Dairy Road OFR	Off Ramp	1500	Level	5256	3.76	0.00	4	70
32	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	4345	Level	4355	3.93	0.00	4	70
33	-	Ives Dairy Road ONR	On Ramp	1500	Level	6555	3.41	0.00	4	70
34	Ives Dairy Road ONR	Broward County Line	Basic Segment	835	Level	6555	3.41	0.00	5	70

Weaving Segment Data										
Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp			
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
2	0.050	935	2.74	0.00	1	50	506	2.07	0.00	1	50
10	0.050	1027	2.34	0.00	1	50	1143	3.32	0.00	1	50
12	0.050	940	0.00	0.00	1	50	264	2.45	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
2	OneSide	775	2	0	1	0
10	OneSide	1140	2	1	1	0
12	OneSide	2350	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh hrs)
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	6160	6180	9600	9360	0.66	0.66	0	68.3	23.2	22.6	0.26	0.25	0.0	0.0	455.0	456.5	6.7	0.2
2	NW 95 Street	NW 103 Street OFR	Weaving	7095	7080	10610	10361	0.68	0.68	0	59.1	23.1	22.5	0.34	0.29	0.1	0.1	596.3	595.0	10.1	1.6
3	NW103 Street OFR	NW 103 Street ONR	Basic Segment	6589	6600	9600	9365	0.70	0.70	0	67.2	25.2	24.6	0.30	0.29	0.0	0.0	549.1	550.0	8.2	0.3
4	-	NW 103 Street ONR	On Ramp	7779	7800	9600	9380	0.83	0.83	0	61.4	32.4	31.7	0.25	0.22	0.0	0.0	488.4	489.7	8.0	1.0
5	NW103 Street ONR	NW 119 Street OFR	Ramp Overlap	7779	7800	9600	9380	0.83	0.83	0	61.4	32.4	31.7	0.04	0.03	0.0	0.0	74.0	74.2	1.2	0.1
6	-	NW 119 Street OFR	Off Ramp	7779	7800	9600	9380	0.83	0.83	0	63.4	31.5	30.7	0.24	0.22	0.0	0.0	488.4	489.7	7.7	0.7
7	NW 119 Street OFR	NW125 Street OFR	Basic Segment	6514	6540	9600	9366	0.70	0.70	0	67.4	24.9	24.3	0.09	0.08	0.0	0.0	156.4	157.0	2.3	0.1
8	-	NW 125 Street OFR	Off Ramp	6514	6540	9600	9366	0.70	0.70	0	65.2	25.7	25.1	0.26	0.24	0.0	0.0	462.6	464.5	7.1	0.5
9	NW 125 Street OFR	NW125 Street ONR	Basic Segment	5838	5820	9600	9355	0.62	0.62	0	69.0	21.6	21.1	0.28	0.28	0.0	0.0	476.8	475.4	6.9	0.1
10	NW 125 Street ONR	NW 135 Street OFR	Weaving	6865	6840	8049	7860	0.87	0.87	0	48.3	32.0	31.3	0.50	0.35	0.2	0.2	695.6	693.1	14.3	4.4
11	NW 135 Street OFR	Opa Locka Blvd ONR	Basic Segment	5722	5700	9600	9361	0.61	0.61	0	69.1	21.2	20.6	0.29	0.28	0.0	0.0	471.4	469.6	6.8	0.1
12	Opa Locka Blvd ONR	NW 151 Street OFR	Weaving	6662	6350	11306	11064	0.60	0.57	926	42.7	29.7	29.1	0.97	0.59	0.4	0.4	1151.3	1097.4	25.7	10.0
13	Opa Locka Blvd ONR	NW6 Avenue OFR	Basic Segment	6398	6104	9600	9391	0.68	0.65	25	24.6	62.1	60.8	0.01	0.00	0.0	0.0	7.6	7.2	0.3	0.2
14	-	Managed Lanes	On Ramp	7718	7194	9600	9426	0.82	0.76	1500	27.9	64.4	63.2	0.61	0.24	0.4	0.4	548.2	510.9	18.3	11.0

		Egress																			
15	Managed Lanes Egress	NB Turnpike OFR	Basic Segment	7718	7080	12000	11782	0.66	0.60	370	14.6	96.7	94.9	0.29	0.06	0.2	0.2	135.2	124.0	8.5	6.7
16	-	NB Turnpike OFR	Off Ramp	7718	7080	7200	7069	1.09	1.00	0	54.4	44.2	43.4	0.31	0.24	0.1	0.1	548.2	502.8	9.3	2.1
17	-	NW167 Street OFR	Off Ramp	3870	3540	7200	7065	0.55	0.50	0	63.3	19.0	18.7	0.27	0.24	0.0	0.0	274.9	251.4	4.0	0.4
18	NW 167 Street OFR	NB SR 7/US-441 OFR	Basic Segment	3452	3180	7200	7065	0.49	0.45	0	69.2	15.6	15.3	0.19	0.19	0.0	0.0	193.2	178.0	2.6	0.0
19	-	NB SR 7/US-441 OFR	Off Ramp	3452	3180	7200	7065	0.49	0.45	0	59.1	18.3	17.9	0.29	0.24	0.0	0.0	245.2	225.9	3.8	0.6
20	NB SR 7/US-441 OFR	NB SR 7/US-441 ONR	Basic Segment	2392	2220	7200	7091	0.34	0.31	0	69.1	10.9	10.7	0.25	0.25	0.0	0.0	174.6	162.1	2.3	0.0
21	-	NB SR 7/US-441 ONR	On Ramp	5388	4320	7200	7053	0.76	0.61	0	61.4	23.6	23.1	0.28	0.24	0.0	3.2	382.7	306.8	5.0	0.6
22	NB SR 7/US-441 ONR	End 4-Lane Section	Basic Segment	5388	4320	9600	9404	0.57	0.46	0	69.3	15.9	15.6	0.26	0.26	0.0	0.0	407.9	327.1	4.7	0.0
23	Begin 3-Lane Section	Managed Lane Ingress	Basic Segment	5388	4320	7200	7053	0.76	0.61	0	69.2	21.3	20.8	0.17	0.16	0.0	0.0	257.2	206.2	3.0	0.0
24	-	Managed Lane Ingress	Off Ramp	5388	5040	7200	7053	0.76	0.71	0	63.3	27.1	26.6	0.27	0.24	0.0	0.0	382.7	358.0	5.7	0.5
25	-	Miami Gardens Dr OFR	Off Ramp	4658	4320	7200	7030	0.66	0.61	0	59.7	24.7	24.1	0.29	0.24	0.0	0.0	330.8	306.8	5.1	0.8
26	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	3858	3600	7200	7042	0.55	0.51	0	68.9	17.8	17.4	0.21	0.21	0.0	0.0	236.4	220.6	3.2	0.0
27	-	Miami Gardens Dr ONR	On Ramp	4963	4680	7200	7059	0.70	0.66	0	63.2	25.1	24.6	0.27	0.24	0.0	0.0	352.5	332.4	5.3	0.5
28	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	4963	4680	9600	9413	0.53	0.50	0	69.0	17.3	17.0	0.14	0.14	0.0	0.0	200.9	189.5	2.7	0.0
29	-	Managed Lane Egress	On Ramp	5256	4980	9600	9423	0.56	0.53	0	65.6	19.3	19.0	0.26	0.24	0.0	0.0	373.3	353.7	5.4	0.3
30	Managed Lane Egress	Ives Dairy Road OFR	Basic Segment	5256	4980	12000	11779	0.45	0.42	0	69.7	14.6	14.3	0.30	0.30	0.0	0.0	461.1	436.9	6.3	0.0
31	-	Ives Dairy Road OFR	Off Ramp	5256	4980	9600	9423	0.56	0.53	0	64.9	19.6	19.2	0.26	0.24	0.0	0.0	373.3	353.7	5.5	0.4
32	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	4355	4140	9600	9415	0.46	0.44	0	70.0	15.1	14.8	0.71	0.71	0.0	0.0	896.0	851.7	12.2	0.0
33	-	Ives Dairy Road ONR	On Ramp	6555	6240	9600	9439	0.69	0.66	0	62.7	25.2	24.7	0.27	0.24	0.0	0.4	465.6	443.2	7.1	0.7
34	Ives Dairy Road ONR	Broward County Line	Basic Segment	6555	6240	12000	11799	0.56	0.53	0	68.9	18.4	18.1	0.14	0.14	0.0	0.0	259.2	246.7	3.6	0.1

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 Street OFR-NW 95 Street ONR	Basic	0.66	68.3	23.2	22.6	0.26	0.25	0,455.0	0,456.5	6.68	0.16
NW 95 Street-NW 103 Street OFR	Weaving	0.68	59.1	23.1	22.5	0.34	0.29	0,596.3	0,595.0	10.07	1.57
NW103 Street OFR- NW 103 Street ONR	Basic	0.70	67.2	25.2	24.6	0.30	0.29	0,549.1	0,550.0	8.18	0.33
--NW 103 Street ONR	OnRamp	0.83	61.4	32.4	31.7	0.25	0.22	0,488.4	0,489.7	7.98	0.98
NW103 Street ONR-NW 119 Street OFR	RampOverlap	0.83	61.4	32.4	31.7	0.04	0.03	0,074.0	0,074.2	1.21	0.15
--NW 119 Street OFR	OffRamp	0.83	63.4	31.5	30.7	0.24	0.22	0,488.4	0,489.7	7.72	0.72
NW 119 Street OFR-NW125 Street OFR	Basic	0.70	67.4	24.9	24.3	0.09	0.08	0,156.4	0,157.0	2.33	0.09

--NW 125 Street OFR	OffRamp	0.70	65.2	25.7	25.1	0.26	0.24	0,462.6	0,464.5	7.12	0.49
NW 125 Street OFR-NW125 Street ONR	Basic	0.62	69.0	21.6	21.1	0.28	0.28	0,476.8	0,475.4	6.89	0.10
NW 125 Street ONR-NW 135 Street OFR	Weaving	0.87	48.3	32.0	31.3	0.50	0.35	0,695.6	0,693.1	14.34	4.44
NW 135 Street OFR-Opa Locka Blvd ONR	Basic	0.61	69.1	21.2	20.6	0.29	0.28	0,471.4	0,469.6	6.80	0.09
Opa Locka Blvd ONR-NW 151 Street OFR	Weaving	0.60	42.7	29.7	29.1	0.97	0.59	1,151.3	1,097.4	25.69	10.02
Opa Locka Blvd ONR-NW6 Avenue OFR	Basic	0.68	24.6	62.1	60.8	0.01	0.00	0,007.6	0,007.2	0.29	0.19
-- Managed Lanes Egress	OnRamp	0.82	27.9	64.4	63.2	0.61	0.24	0,548.2	0,510.9	18.30	11.00
Managed Lanes Egress-NB Turnpike OFR	Basic	0.66	14.6	96.7	94.9	0.29	0.06	0,135.2	0,124.0	8.47	6.70
--NB Turnpike OFR	OffRamp	1.09	54.4	44.2	43.4	0.31	0.24	0,548.2	0,502.8	9.25	2.07
--NW167 Street OFR	OffRamp	0.55	63.3	19.0	18.7	0.27	0.24	0,274.9	0,251.4	3.97	0.38
NW 167 Street OFR-NB SR 7/US-441 OFR	Basic	0.49	69.2	15.6	15.3	0.19	0.19	0,193.2	0,178.0	2.57	0.03
--NB SR 7/US-441 OFR	OffRamp	0.49	59.1	18.3	17.9	0.29	0.24	0,245.2	0,225.9	3.82	0.59
NB SR 7/US-441 OFR-NB SR 7/US-441 ONR	Basic	0.34	69.1	10.9	10.7	0.25	0.25	0,174.6	0,162.1	2.35	0.03
--NB SR 7/US-441 ONR	OnRamp	0.76	61.4	23.6	23.1	0.28	0.24	0,382.7	0,306.8	5.00	0.62
NB SR 7/US-441 ONR-End 4-Lane Section	Basic	0.57	69.3	15.9	15.6	0.26	0.26	0,407.9	0,327.1	4.72	0.05
Begin 3-Lane Section-Managed Lane Ingress	Basic	0.76	69.2	21.3	20.8	0.17	0.16	0,257.2	0,206.2	2.98	0.04
-- Managed Lane Ingress	OffRamp	0.76	63.3	27.1	26.6	0.27	0.24	0,382.7	0,358.0	5.66	0.54
--Miami Gardens Dr OFR	OffRamp	0.66	59.7	24.7	24.1	0.29	0.24	0,330.8	0,306.8	5.14	0.76
Miami Gardens Dr OFR-Miami Gardens Dr ONR	Basic	0.55	68.9	17.8	17.4	0.21	0.21	0,236.4	0,220.6	3.20	0.05
--Miami Gardens Dr ONR	OnRamp	0.70	63.2	25.1	24.6	0.27	0.24	0,352.5	0,332.4	5.26	0.51
Miami Gardens Dr ONR-Managed Lane Egress	Basic	0.53	69.0	17.3	17.0	0.14	0.14	0,200.9	0,189.5	2.75	0.04
-- Managed Lane Egress	OnRamp	0.56	65.6	19.3	19.0	0.26	0.24	0,373.3	0,353.7	5.39	0.34
Managed Lane Egress-Ives Dairy Road OFR	Basic	0.45	69.7	14.6	14.3	0.30	0.30	0,461.1	0,436.9	6.27	0.03
--Ives Dairy Road OFR	OffRamp	0.56	64.9	19.6	19.2	0.26	0.24	0,373.3	0,353.7	5.45	0.40

Ives Dairy Road OFR-Ives Dairy Road ONR	Basic	0.46	70.0	15.1	14.8	0.71	0.71	0,896.0	0,851.7	12.18	0.01
--Ives Dairy Road ONR	OnRamp	0.69	62.7	25.2	24.7	0.27	0.24	0,465.6	0,443.2	7.07	0.74
Ives Dairy Road ONR-Broward County Line	Basic	0.56	68.9	18.4	18.1	0.14	0.14	0,259.2	0,246.7	3.58	0.06
Freeway			56.4	24.9	24.4	9.86	8.22	13,571.8	12,907.6	0,228.7	0,044.3

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Weaving	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Off Ramp	Basic	Weaving	Basic	Weaving	Basic	On Ramp	Basic
1	C	C	C	D	D	D	C	C	C	D	C	D	F	F	F

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Off Ramp	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Basic	Off Ramp	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic
1	E	B	B	B	A	C	B	C	C	C	B	C	B	B	B

	Density-Based LOS by Segment			
Segment	31	32	33	34
Time Step	Off Ramp	Basic	On Ramp	Basic
1	B	B	C	C

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	F	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment			
Time Step	31	32	33	34
1	.	.	.	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 NorthBound	**Analysis Period**	PM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 8.112	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 17.260		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Northern Section of I95 NB Corridor- (MM 8.112 to 17.260) From NW 95 ST to END of Project I95 Broward County Line- 2045 No-Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.58700**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 Street OFR	NW95 Street ONR	Basic Segment	1560	Level	5258	6.02	0.00	4	70
2	NW 95 Street ONR	NW 103 Street OFR	Weaving	1775	Level	5841	5.62	0.00	5	70
3	NW 103 Street OFR	NW 103 Street ONR	Basic Segment	1760	Level	5200	6.03	0.00	4	70
4	-	NW 103 Street ONR	On Ramp	1326	Level	6193	5.29	0.00	4	70
5	NW 103 Street ONR	NW 119 Street OFR	Ramp Overlap	201	Level	6193	5.29	0.00	4	70
6	-	NW 119 Street OFR	Off Ramp	1326	Level	6193	5.29	0.00	4	70
7	NW 119 Street OFR	NW 125 Street OFR	Basic Segment	507	Level	5680	5.42	0.00	4	70
8	-	NW 125 Street OFR	Off Ramp	1500	Level	5680	5.42	0.00	4	70
9	NW 125 Street OFR	NW 125 Street ONR	Basic Segment	1725	Level	5179	5.73	0.00	4	70
10	NW 125 Street ONR	NW 135 Street OFR	Weaving	2140	Level	5818	5.39	0.00	5	70
11	NW 135 Street OFR	Opa Loca Blvd ONR	Basic Segment	1740	Level	4974	5.81	0.00	4	70
12	Opa Locka Blvd ONR	NW 151 Street OFR	Weaving	3650	Level	6005	4.81	0.00	5	70
13	NW 6 Avenue OFR	I-95 Mainline	Basic Segment	25	Level	5701	4.96	0.00	4	70
14	-	Managed Lane Egress	On Ramp	1500	Level	6975	4.05	0.00	4	70
15	Managed Lane Egress	NB Turnpike OFR	Basic Segment	370	Level	6975	4.05	0.00	5	70
16	-	NB Turnpike OFR	Off Ramp	1500	Level	6975	4.05	0.00	3	70
17	-	NW 167 Street OFR	Off Ramp	1500	Level	3305	5.40	0.00	3	70
18	NW 167 Street OFR	NB SR 7/US-441 OFR	Basic Segment	1182	Level	2927	5.79	0.00	3	70
19	-	NB SR 7/US-441 OFR	Off Ramp	1500	Level	2927	5.79	0.00	3	70
20	NB US-441 OFR	NB SR 7/US-441 ONR	Basic Segment	1542	Level	1855	7.25	0.00	3	70
21	-	NB SR 7/US-441 ONR	On Ramp	1500	Level	4594	6.74	0.00	3	70
22	NB SR 7/US-441 ONR	End 4-Lane Section	Basic Segment	1599	Level	4594	6.74	0.00	4	70
23	Begin 3-Lane Section	Managed Lane Ingress	Basic Segment	1008	Level	4594	6.74	0.00	3	70
		Managed								

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
4	On Ramp	993	1.39	0.00	1	850	50
6	Off Ramp	513	3.77	0.00	1	148	50
8	Off Ramp	501	2.28	0.00	1	195	50
14	On Ramp	1274	0.00	0.00	1	1500	50
16	Off Ramp	3670	2.84	0.00	2	1500	50
17	Off Ramp	378	2.36	0.00	1	155	50
19	Off Ramp	1072	3.26	0.00	1	265	50
21	On Ramp	2739	6.39	0.00	2	1500	50
24	Off Ramp	693	0.00	0.00	1	450	40
25	Off Ramp	841	1.64	0.00	1	230	50
27	On Ramp	1162	1.94	0.00	1	1500	50
29	On Ramp	348	0.00	0.00	1	1500	50
31	Off Ramp	1081	1.04	0.00	1	1500	50
33	On Ramp	2085	1.82	0.00	1	1500	50

Weaving Segment Data

24	-	Lane Ingress	Off Ramp	1500	Level	4594	6.74	0.00	3	70
25	-	Miami Gardens Dr OFR	Off Ramp	1500	Level	3901	7.93	0.00	3	70
26	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	1294	Level	3060	9.66	0.00	3	70
27	-	Miami Gardens ONR	On Ramp	1500	Level	4222	7.54	0.00	3	70
28	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	855	Level	4222	7.54	0.00	4	70
29	-	Managed Lane Egress	On Ramp	1500	Level	4570	6.96	0.00	4	70
30	Managed Lane Egress	Ives Dairy Rd OFR	Basic Segment	1853	Level	4570	6.96	0.00	5	70
31	-	Ives Dairy Rd OFR	Off Ramp	1500	Level	4570	6.96	0.00	4	70
32	Ives Dairy Rd OFR	Ives Dairy Rd ONR	Basic Segment	4345	Level	3489	8.80	0.00	4	70
33	-	Ives Dairy Rd ONR	On Ramp	1500	Level	5574	6.19	0.00	4	70
34	Ives Dairy Rd ONR	Broward County Line	Basic Segment	835	Level	5574	6.19	0.00	5	70

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
2	0.050	583	1.97	0.00	1	50	641	2.24	0.00	1	50
10	0.050	639	2.65	0.00	1	50	844	2.93	0.00	1	50
12	0.050	1031	0.00	0.00	1	50	304	2.07	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
2	OneSide	775	2	0	1	0
10	OneSide	1140	2	1	1	0
12	OneSide	2350	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh hrs)
1	NW 95 Street OFR	NW95 Street ONR	Basic Segment	5258	5258	9600	9319	0.56	0.56	0	69.7	19.4	18.9	0.25	0.25	0.0	0.0	388.4	388.4	5.6	0.0
2	NW 95 Street ONR	NW 103 Street OFR	Weaving	5841	5841	10577	10288	0.57	0.57	0	58.8	20.4	19.9	0.34	0.29	0.1	0.1	490.9	490.9	8.3	1.3
3	NW 103 Street OFR	NW 103 Street ONR	Basic Segment	5200	5200	9600	9319	0.56	0.56	0	69.4	19.3	18.7	0.29	0.29	0.0	0.0	433.3	433.3	6.2	0.1
4	-	NW 103 Street ONR	On Ramp	6193	6193	9600	9353	0.66	0.66	0	63.4	25.0	24.4	0.24	0.22	0.0	0.0	388.8	388.8	6.1	0.6
5	NW 103 Street ONR	NW 119 Street OFR	Ramp Overlap	6193	6193	9600	9353	0.66	0.66	0	63.4	25.0	24.4	0.04	0.03	0.0	0.0	58.9	58.9	0.9	0.1
6	-	NW 119 Street OFR	Off Ramp	6193	6193	9600	9353	0.66	0.66	0	67.9	23.4	22.8	0.22	0.22	0.0	0.0	388.8	388.8	5.7	0.2
7	NW 119 Street OFR	NW 125 Street OFR	Basic Segment	5680	5680	9600	9346	0.61	0.61	0	66.3	22.0	21.4	0.09	0.08	0.0	0.0	136.4	136.4	2.1	0.1
8	-	NW 125 Street OFR	Off Ramp	5680	5680	9600	9346	0.61	0.61	0	68.1	21.4	20.8	0.25	0.24	0.0	0.0	403.4	403.4	5.9	0.2
9	NW 125 Street OFR	NW 125 Street ONR	Basic Segment	5179	5179	9600	9333	0.55	0.55	0	69.8	19.1	18.5	0.28	0.28	0.0	0.0	423.0	423.0	6.1	0.0
10	NW 125 Street ONR	NW 135 Street OFR	Weaving	5818	5818	9970	9708	0.60	0.60	0	53.8	22.2	21.6	0.45	0.35	0.1	0.1	589.5	589.5	10.9	2.5
11	NW 135 Street OFR	Opa Loca Blvd ONR	Basic Segment	4974	4974	9600	9329	0.53	0.53	0	69.3	18.5	17.9	0.29	0.28	0.0	0.0	409.8	409.8	5.9	0.1
12	Opa Locka Blvd ONR	NW 151 Street OFR	Weaving	6005	6005	11161	10899	0.55	0.55	0	55.6	22.1	21.6	0.75	0.59	0.2	0.2	1037.8	1037.8	18.7	3.8
13	NW 6 Avenue OFR	I-95 Mainline	Basic Segment	5701	5701	9600	9368	0.61	0.61	0	69.2	21.1	20.6	0.00	0.00	0.0	0.0	6.7	6.7	0.1	0.0
14	-	Managed Lane Egress	On Ramp	6975	6975	9600	9409	0.74	0.74	0	61.9	28.7	28.2	0.28	0.24	0.0	0.0	495.4	495.4	8.0	0.9
15	Managed Lane Egress	NB Turnpike OFR	Basic Segment	6975	6975	12000	11762	0.59	0.59	0	68.2	20.9	20.4	0.06	0.06	0.0	0.0	122.2	122.2	1.8	0.0
16	-	NB Turnpike	Off Ramp	6975	6975	7200	7057	0.99	0.99	0	58.1	40.8	40.0	0.29	0.24	0.0	0.0	495.4	495.4	8.5	1.4

		OFR																			
17	-	NW 167 Street OFR	Off Ramp	3305	3305	7200	7011	0.47	0.47	0	66.2	17.1	16.6	0.26	0.24	0.0	0.0	234.7	234.7	3.5	0.2
18	NW 167 Street OFR	NB SR 7/US-441 OFR	Basic Segment	2927	2927	7200	6997	0.42	0.42	0	69.6	14.4	14.0	0.19	0.19	0.0	0.0	163.8	163.8	2.4	0.0
19	-	NB SR 7/US-441 OFR	Off Ramp	2927	2927	7200	6997	0.42	0.42	0	62.6	16.0	15.6	0.27	0.24	0.0	0.0	207.9	207.9	3.3	0.4
20	NB US-441 OFR	NB SR 7/US-441 ONR	Basic Segment	1855	1855	7200	6948	0.27	0.27	0	69.4	9.2	8.9	0.25	0.25	0.0	0.0	135.4	135.4	2.0	0.0
21	-	NB SR 7/US-441 ONR	On Ramp	4594	4594	7200	6965	0.66	0.66	0	61.3	25.3	24.5	0.28	0.24	0.0	0.0	326.3	326.3	5.3	0.7
22	NB SR 7/US-441 ONR	End 4-Lane Section	Basic Segment	4594	4594	9600	9287	0.49	0.49	0	69.3	17.1	16.6	0.26	0.26	0.0	0.0	347.8	347.8	5.0	0.1
23	Begin 3-Lane Section	Managed Lane Ingress	Basic Segment	4594	4594	7200	6965	0.66	0.66	0	68.3	23.2	22.4	0.17	0.16	0.0	0.0	219.3	219.3	3.2	0.1
24	-	Managed Lane Ingress	Off Ramp	4594	4594	7200	6965	0.66	0.66	0	60.1	26.3	25.5	0.28	0.24	0.0	0.0	326.3	326.3	5.4	0.8
25	-	Miami Gardens Dr OFR	Off Ramp	3901	3901	7200	6925	0.56	0.56	0	64.9	20.8	20.0	0.26	0.24	0.0	0.0	277.1	277.1	4.3	0.3
26	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	3060	3060	7200	6868	0.45	0.45	0	69.5	15.4	14.7	0.21	0.21	0.0	0.0	187.5	187.5	2.7	0.0
27	-	Miami Gardens ONR	On Ramp	4222	4222	7200	6938	0.61	0.61	0	63.9	22.8	22.0	0.27	0.24	0.0	0.0	299.9	299.9	4.7	0.4
28	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	4222	4222	9600	9251	0.46	0.46	0	69.1	15.9	15.3	0.14	0.14	0.0	0.0	170.9	170.9	2.5	0.0
29	-	Managed Lane Egress	On Ramp	4570	4570	9600	9277	0.49	0.49	0	65.8	18.0	17.4	0.26	0.24	0.0	0.0	324.6	324.6	4.9	0.3
30	Managed Lane Egress	Ives Dairy Rd OFR	Basic Segment	4570	4570	12000	11596	0.39	0.39	0	69.7	13.6	13.1	0.30	0.30	0.0	0.0	401.0	401.0	5.8	0.0
31	-	Ives Dairy Rd OFR	Off Ramp	4570	4570	9600	9277	0.49	0.49	0	66.8	17.7	17.1	0.26	0.24	0.0	0.0	324.6	324.6	4.9	0.2
32	Ives Dairy Rd OFR	Ives Dairy Rd ONR	Basic Segment	3489	3489	9600	9195	0.38	0.38	0	70.0	13.0	12.5	0.71	0.71	0.0	0.0	717.8	717.8	10.3	0.0
33	-	Ives Dairy Rd ONR	On Ramp	5574	5574	9600	9312	0.60	0.60	0	63.7	22.5	21.8	0.27	0.24	0.0	0.0	395.9	395.9	6.2	0.6
34	Ives Dairy Rd ONR	Broward County Line	Basic Segment	5574	5574	12000	11640	0.48	0.48	0	69.1	16.6	16.1	0.14	0.14	0.0	0.0	220.4	220.4	3.2	0.0

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 Street OFR-NW95 Street ONR	Basic	0.56	69.7	19.4	18.9	0.25	0.25	0,388.4	0,388.4	5.57	0.02
NW 95 Street ONR-NW 103 Street OFR	Weaving	0.57	58.8	20.4	19.9	0.34	0.29	0,490.9	0,490.9	8.35	1.33
NW 103 Street OFR-NW 103 Street ONR	Basic	0.56	69.4	19.3	18.7	0.29	0.29	0,433.3	0,433.3	6.25	0.06
--NW 103 Street ONR	OnRamp	0.66	63.4	25.0	24.4	0.24	0.22	0,388.8	0,388.8	6.14	0.58
NW 103 Street ONR-NW 119 Street OFR	RampOverlap	0.66	63.4	25.0	24.4	0.04	0.03	0,058.9	0,058.9	0.93	0.09
--NW 119 Street OFR	OffRamp	0.66	67.9	23.4	22.8	0.22	0.22	0,388.8	0,388.8	5.73	0.17
NW 119 Street OFR-NW 125 Street OFR	Basic	0.61	66.3	22.0	21.4	0.09	0.08	0,136.4	0,136.4	2.06	0.11
--NW 125 Street OFR	OffRamp	0.61	68.1	21.4	20.8	0.25	0.24	0,403.4	0,403.4	5.92	0.16
NW 125 Street OFR-NW 125 Street ONR	Basic	0.55	69.8	19.1	18.5	0.28	0.28	0,423.0	0,423.0	6.06	0.02

NW 125 Street ONR-NW 135 Street OFR	Weaving	0.60	53.8	22.2	21.6	0.45	0.35	0,589.5	0,589.5	10.95	2.53
NW 135 Street OFR-Opa Loca Blvd ONR	Basic	0.53	69.3	18.5	17.9	0.29	0.28	0,409.8	0,409.8	5.91	0.06
Opa Locka Blvd ONR-NW 151 Street OFR	Weaving	0.55	55.6	22.1	21.6	0.75	0.59	1,037.8	1,037.8	18.66	3.83
NW 6 Avenue OFR-I-95 Mainline	Basic	0.61	69.2	21.1	20.6	0.00	0.00	0,006.7	0,006.7	0.10	0.00
-- Managed Lane Egress	OnRamp	0.74	61.9	28.7	28.2	0.28	0.24	0,495.4	0,495.4	8.00	0.93
Managed Lane Egress-NB Turnpike OFR	Basic	0.59	68.2	20.9	20.4	0.06	0.06	0,122.2	0,122.2	1.79	0.05
--NB Turnpike OFR	OffRamp	0.99	58.1	40.8	40.0	0.29	0.24	0,495.4	0,495.4	8.53	1.45
--NW 167 Street OFR	OffRamp	0.47	66.2	17.1	16.6	0.26	0.24	0,234.7	0,234.7	3.54	0.19
NW 167 Street OFR-NB SR 7/US-441 OFR	Basic	0.42	69.6	14.4	14.0	0.19	0.19	0,163.8	0,163.8	2.35	0.01
--NB SR 7/US-441 OFR	OffRamp	0.42	62.6	16.0	15.6	0.27	0.24	0,207.9	0,207.9	3.32	0.35
NB US-441 OFR-NB SR 7/US-441 ONR	Basic	0.27	69.4	9.2	8.9	0.25	0.25	0,135.4	0,135.4	1.95	0.02
--NB SR 7/US-441 ONR	OnRamp	0.66	61.3	25.3	24.5	0.28	0.24	0,326.3	0,326.3	5.32	0.66
NB SR 7/US-441 ONR-End 4-Lane Section	Basic	0.49	69.3	17.1	16.6	0.26	0.26	0,347.8	0,347.8	5.02	0.05
Begin 3-Lane Section-Managed Lane Ingress	Basic	0.66	68.3	23.2	22.4	0.17	0.16	0,219.3	0,219.3	3.21	0.08
-- Managed Lane Ingress	OffRamp	0.66	60.1	26.3	25.5	0.28	0.24	0,326.3	0,326.3	5.43	0.76
--Miami Gardens Dr OFR	OffRamp	0.56	64.9	20.8	20.0	0.26	0.24	0,277.1	0,277.1	4.27	0.31
Miami Gardens Dr OFR-Miami Gardens Dr ONR	Basic	0.45	69.5	15.4	14.7	0.21	0.21	0,187.5	0,187.5	2.70	0.02
--Miami Gardens ONR	OnRamp	0.61	63.9	22.8	22.0	0.27	0.24	0,299.9	0,299.9	4.69	0.41
Miami Gardens Dr ONR-Managed Lane Egress	Basic	0.46	69.1	15.9	15.3	0.14	0.14	0,170.9	0,170.9	2.47	0.03
-- Managed Lane Egress	OnRamp	0.49	65.8	18.0	17.4	0.26	0.24	0,324.6	0,324.6	4.93	0.29
Managed Lane Egress-Ives Dairy Rd OFR	Basic	0.39	69.7	13.6	13.1	0.30	0.30	0,401.0	0,401.0	5.75	0.02
--Ives Dairy Rd OFR	OffRamp	0.49	66.8	17.7	17.1	0.26	0.24	0,324.6	0,324.6	4.86	0.22
Ives Dairy Rd OFR-Ives Dairy Rd ONR	Basic	0.38	70.0	13.0	12.5	0.71	0.71	0,717.8	0,717.8	10.26	0.00
--Ives Dairy Rd ONR	OnRamp	0.60	63.7	22.5	21.8	0.27	0.24	0,395.9	0,395.9	6.21	0.56
Ives Dairy Rd ONR-	Basic	0.48	69.1	16.6	16.1	0.14	0.14	0,220.4	0,220.4	3.19	0.04

Broward County Line											
Freeway			64.0	19.9	19.3	8.89	8.22	11,549.7	11,549.7	0,180.4	0,015.4

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Weaving	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Off Ramp	Basic	Weaving	Basic	Weaving	Basic	On Ramp	Basic
1	C	C	C	C	C	C	C	C	C	C	C	C	C	D	C

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Off Ramp	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Basic	Off Ramp	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic
1	E	B	B	B	A	C	B	C	C	C	B	C	B	B	B

	Density-Based LOS by Segment			
Segment	31	32	33	34
Time Step	Off Ramp	Basic	On Ramp	Basic
1	B	B	C	B

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment			
Time Step	31	32	33	34
1	.	.	.	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 SOUTHBOUND	**Analysis Period**	AM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 8.105	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 0.000		
Location	Miami-Dade County	**Analysis Direction**	SOUTHBOUND		
User Notes	Northern Section of I95 SB Corridor- (MM 8.105 to 0.000) From NW 95 ST TO END OF PROJECT AT I-95 S AND US-1- 2045 No-Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.35300**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	1748	Level	8076	2.96	0.00	4	70
2	-	NW 95 Street ONR	On Ramp	852	Level	9165	2.84	0.00	4	70
3	NW95 Street ONR	NW81 Street OFR	Ramp Overlap	648	Level	9165	2.84	0.00	4	70
4	-	NW81 Street OFR	Off Ramp	852	Level	9165	2.84	0.00	4	70
5	NW 81 Street OFR	NW 79 Street ONR	Basic Segment	2300	Level	8432	2.72	0.00	4	70
6	NW 79 Street ONR	NW 69 Street OFR	Weaving	3331	Level	9527	2.71	0.00	5	70
7	-	NW 62 Street OFR	Off Ramp	1500	Level	9487	2.72	0.00	4	70
8	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	2237	Level	8458	2.77	0.00	4	70
9	-	NW 62 Street ONR	On Ramp	1500	Level	10099	2.81	0.00	4	70
10	NW 62 Street ONR	SR 112/I-195 OFR	Basic Segment	1519	Level	10099	2.81	0.00	5	70
11	-	SR 112/I-195 OFR	Off Ramp	1500	Level	10099	2.81	0.00	3	70
12	SR 112/I-195 OFR	SR 112/I-195 ONR	Basic Segment	4309	Level	7488	3.10	0.00	3	70
13	-	SR 112/I-195 ONR	On Ramp	1500	Level	9774	3.14	0.00	3	70
14	-	Managed Lane Egress	On Ramp	1500	Level	13321	2.30	0.00	4	70
15	Managed Lane Egress	SR 836 OFR	Basic Segment	1157	Level	13321	2.30	0.00	6	70
16	-	SR836 OFR	Off Ramp	1500	Level	13321	2.30	0.00	4	70
17	-	I-395 OFR	Off Ramp	1500	Level	9685	2.43	0.00	4	70
18	-	NW 8 Street OFR	Off Ramp	1500	Level	8206	2.43	0.00	3	70
19	NW 8 Street OFR	I-395/SR 836 ONR	Basic Segment	1228	Level	6760	1.87	0.00	3	70
20	-	I-395/SR 836 ONR	On Ramp	1500	Level	9326	1.69	0.00	4	70
21	I-395/SR 836 ONR	SW 7 Street OFR	Basic Segment	335	Level	9326	1.69	0.00	4	70
22	-	SW 7 Street OFR	Off Ramp	1500	Level	9326	1.69	0.00	4	70
23	-	Dwntwn Dstrbtr OFR	Off Ramp	1500	Level	7496	1.11	0.00	4	70
24	Dwntwn Dstrbtr OFR	NW 2 Street ONR	Basic Segment	719	Level	4828	0.95	0.00	3	70
25	-	NW 2 Street	On Ramp	1500	Level	5387	1.06	0.00	3	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	1089	1.99	0.00	1	800	50
4	Off Ramp	733	4.33	0.00	1	450	50
7	Off Ramp	1029	2.31	0.00	1	450	50
9	On Ramp	1641	3.00	0.00	1	1500	50
11	Off Ramp	2611	1.97	0.00	2	1500	50
13	On Ramp	2286	3.28	0.00	2	1500	50
14	On Ramp	3547	0.00	0.00	2	1500	50
16	Off Ramp	3636	1.97	0.00	2	1500	50
17	Off Ramp	1479	2.43	0.00	2	210	50
18	Off Ramp	1446	5.04	0.00	1	210	50
20	On Ramp	2566	1.20	0.00	2	1000	50
22	Off Ramp	1830	4.05	0.00	1	190	50
23	Off Ramp	2668	1.39	0.00	2	293	50
25	On Ramp	559	2.00	0.00	1	545	50
26	On Ramp	433	3.39	0.00	1	950	50
28	On Ramp	311	5.40	0.00	1	1367	50
30	Off Ramp	2409	2.19	0.00	1	1500	40

Weaving Segment Data

		ONR								
26	-	Dwntwn Dstrbtr ONR	On Ramp	1500	Level	5820	1.24	0.00	3	70
27	Dwntwn Dstrbtr ONR	SW 8 Street ONR	Basic Segment	1438	Level	5820	1.24	0.00	3	70
28	-	SW 8 Street ONR	On Ramp	1500	Level	6131	1.45	0.00	3	70
29	SW 8 Street ONR	SW 26 Road OFR	Basic Segment	566	Level	6131	1.45	0.00	3	70
30	-	SW 26 Road OFR	Off Ramp	1500	Level	6131	1.45	0.00	2	70
31	SW 26 Road OFR	US 1	Basic Segment	3643	Level	3722	0.97	0.00	2	70

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
6	0.050	1095	2.69	0.00	1	50	40	1.22	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
6	OneSide	2530	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh hrs)
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	8076	8100	9600	9460	0.85	0.86	0	61.5	33.4	32.9	0.32	0.28	0.0	0.0	668.4	670.4	10.9	1.3
2	-	NW 95 Street ONR	On Ramp	9165	9180	9600	9465	0.97	0.97	0	59.7	38.9	38.4	0.16	0.14	0.0	0.0	369.7	370.3	6.2	0.9
3	NW95 Street ONR	NW81 Street OFR	Ramp Overlap	9165	9180	9600	9465	0.97	0.97	0	59.7	38.9	38.4	0.12	0.11	0.0	0.0	281.2	281.7	4.7	0.7
4	-	NW81 Street OFR	Off Ramp	9165	9180	9600	9465	0.97	0.97	0	64.2	36.3	35.8	0.15	0.14	0.0	0.0	369.7	370.3	5.8	0.5
5	NW 81 Street OFR	NW 79 Street ONR	Basic Segment	8432	8109	9600	9471	0.89	0.86	1879	51.4	39.4	38.9	0.51	0.37	0.1	0.1	918.3	883.1	17.2	4.6
6	NW 79 Street ONR	NW 69 Street OFR	Weaving	9527	8173	11586	11431	0.83	0.71	3331	27.6	59.3	58.5	1.37	0.54	0.8	2.2	1502.6	1289.0	46.7	28.3
7	-	NW 62 Street OFR	Off Ramp	9487	7950	9600	9471	1.00	0.84	1500	29.6	67.2	66.3	0.58	0.24	0.3	0.3	673.8	564.6	19.1	11.0
8	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	8458	6622	9600	9469	0.89	0.70	2237	21.2	78.1	77.0	1.20	0.36	0.8	0.8	895.9	701.4	33.1	23.1
9	-	NW 62 Street ONR	On Ramp	10099	7508	9600	9467	1.07	0.79	1500	25.5	73.7	72.7	0.67	0.24	0.4	4.7	717.3	533.2	20.9	13.3
10	NW 62 Street ONR	SR 112/I-195 OFR	Basic Segment	10099	7080	12000	11834	0.85	0.60	1519	14.6	97.0	95.7	1.18	0.25	0.9	0.9	726.3	509.2	34.9	27.6
11	-	SR 112/I-195 OFR	Off Ramp	10099	7080	7200	7100	1.42	1.00	0	58.3	41.1	40.5	0.29	0.24	0.0	0.0	717.3	502.8	8.6	1.4
12	SR 112/I-195 OFR	SR 112/I-195 ONR	Basic Segment	7488	5280	7200	7090	1.06	0.74	0	66.0	27.1	26.7	0.74	0.70	0.0	0.0	1527.7	1077.3	16.3	0.9
13	-	SR 112/I-195 ONR	On Ramp	9774	7080	7200	7089	1.38	1.00	0	51.5	46.3	45.6	0.33	0.24	0.1	2.0	694.2	502.8	9.8	2.6
14	-	Managed Lane Egress	On Ramp	13321	9180	9600	9491	1.40	0.97	0	35.7	64.7	64.0	0.48	0.24	0.2	5.4	946.1	652.0	18.2	8.9
15	Managed Lane Egress	SR 836 OFR	Basic Segment	13321	9180	14400	14236	0.94	0.64	0	66.0	23.4	23.2	0.20	0.19	0.0	0.0	729.8	502.9	7.6	0.4
16	-	SR836 OFR	Off Ramp	13321	9180	9600	9491	1.40	0.97	0	58.5	39.7	39.2	0.29	0.24	0.0	0.0	946.1	652.0	11.1	1.8
17	-	I-395 OFR	Off Ramp	9685	6660	9600	9485	1.02	0.70	0	64.8	26.0	25.7	0.26	0.24	0.0	0.0	687.9	473.0	7.3	0.5
18	-	NW 8 Street OFR	Off Ramp	8206	5640	7200	7114	1.15	0.79	0	58.9	32.3	31.9	0.29	0.24	0.0	0.0	582.8	400.6	6.8	1.1
19	NW 8 Street OFR	I-395/SR 836 ONR	Basic Segment	6760	4680	7200	7133	0.95	0.66	0	68.4	23.0	22.8	0.20	0.20	0.0	0.0	393.1	272.1	4.0	0.1
20	-	I-395/SR 836 ONR	On Ramp	9326	6780	9600	9520	0.98	0.71	0	59.7	28.5	28.3	0.29	0.24	0.0	1.7	662.4	481.5	8.1	1.2
21	I-395/SR 836 ONR	SW 7 Street OFR	Basic Segment	9326	6780	9600	9520	0.98	0.71	0	67.0	25.5	25.3	0.06	0.05	0.0	0.0	147.9	107.5	1.6	0.1
22	-	SW 7 Street OFR	Off Ramp	9326	6780	9600	9520	0.98	0.71	0	61.9	27.6	27.4	0.28	0.24	0.0	0.0	662.4	481.5	7.8	0.9

23	-	Dwntwn Dstrbtr OFR	Off Ramp	7496	5460	9600	9547	0.79	0.57	0	60.0	22.9	22.7	0.28	0.24	0.0	0.0	532.4	387.8	6.5	0.9
24	Dwntwn Dstrbtr OFR	NW 2 Street ONR	Basic Segment	4828	3480	7200	7166	0.67	0.49	0	68.4	17.1	17.0	0.12	0.12	0.0	0.0	164.4	118.5	1.7	0.0
25	-	NW 2 Street ONR	On Ramp	5387	4080	7200	7162	0.75	0.57	0	62.8	21.7	21.6	0.27	0.24	0.0	0.0	382.6	289.8	4.6	0.5
26	-	Dwntwn Dstrbtr ONR	On Ramp	5820	4500	7200	7156	0.81	0.63	0	63.1	23.9	23.7	0.27	0.24	0.0	0.0	413.4	319.6	5.1	0.5
27	Dwntwn Dstrbtr ONR	SW 8 Street ONR	Basic Segment	5820	4500	7200	7156	0.81	0.63	0	68.9	21.9	21.8	0.24	0.23	0.0	0.0	396.3	306.4	4.4	0.1
28	-	SW 8 Street ONR	On Ramp	6131	4800	7200	7148	0.86	0.67	0	58.9	27.3	27.1	0.29	0.24	0.0	0.0	435.4	340.9	5.8	0.9
29	SW 8 Street ONR	SW 26 Road OFR	Basic Segment	6131	4728	7200	7148	0.86	0.66	273	44.1	35.7	35.5	0.15	0.09	0.1	0.1	164.3	126.7	2.9	1.1
30	-	SW 26 Road OFR	Off Ramp	6131	4728	4800	4766	1.29	0.99	0	53.7	44.3	44.0	0.32	0.24	0.1	0.1	435.4	335.8	6.3	1.5
31	SW 26 Road OFR	US 1	Basic Segment	3722	2873	4800	4777	0.78	0.60	0	69.3	20.8	20.7	0.60	0.59	0.0	0.0	642.0	495.6	7.1	0.1

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 Street OFR-NW 95 Street ONR	Basic	0.85	61.5	33.4	32.9	0.32	0.28	0,668.4	0,670.4	10.90	1.32
--NW 95 Street ONR	OnRamp	0.97	59.7	38.9	38.4	0.16	0.14	0,369.7	0,370.3	6.20	0.91
NW95 Street ONR-NW81 Street OFR	RampOverlap	0.97	59.7	38.9	38.4	0.12	0.11	0,281.2	0,281.7	4.72	0.69
--NW81 Street OFR	OffRamp	0.97	64.2	36.3	35.8	0.15	0.14	0,369.7	0,370.3	5.77	0.48
NW 81 Street OFR-NW 79 Street ONR	Basic	0.89	51.4	39.4	38.9	0.51	0.37	0,918.3	0,883.1	17.17	4.55
NW 79 Street ONR-NW 69 Street OFR	Weaving	0.83	27.6	59.3	58.5	1.37	0.54	1,502.6	1,289.0	46.75	28.33
--NW 62 Street OFR	OffRamp	1.00	29.6	67.2	66.3	0.58	0.24	0,673.8	0,564.6	19.08	11.02
NW 62 Street OFR-NW 62 Street ONR	Basic	0.89	21.2	78.1	77.0	1.20	0.36	0,895.9	0,701.4	33.07	23.05
--NW 62 Street ONR	OnRamp	1.07	25.5	73.7	72.7	0.67	0.24	0,717.3	0,533.2	20.93	13.32
NW 62 Street ONR-SR 112/I-195 OFR	Basic	0.85	14.6	97.0	95.7	1.18	0.25	0,726.3	0,509.2	34.90	27.63
--SR 112/I-195 OFR	OffRamp	1.42	58.3	41.1	40.5	0.29	0.24	0,717.3	0,502.8	8.63	1.45
SR 112/I-195 OFR-SR 112/I-195 ONR	Basic	1.06	66.0	27.1	26.7	0.74	0.70	1,527.7	1,077.3	16.32	0.93
--SR 112/I-195 ONR	OnRamp	1.38	51.5	46.3	45.6	0.33	0.24	0,694.2	0,502.8	9.77	2.59
-- Managed Lane Egress	OnRamp	1.40	35.7	64.7	64.0	0.48	0.24	0,946.1	0,652.0	18.25	8.94
Managed Lane Egress-SR 836 OFR	Basic	0.94	66.0	23.4	23.2	0.20	0.19	0,729.8	0,502.9	7.62	0.43
--SR836 OFR	OffRamp	1.40	58.5	39.7	39.2	0.29	0.24	0,946.1	0,652.0	11.14	1.83
--I-395 OFR	OffRamp	1.02	64.8	26.0	25.7	0.26	0.24	0,687.9	0,473.0	7.30	0.55
--NW 8 Street OFR	OffRamp	1.15	58.9	32.3	31.9	0.29	0.24	0,582.8	0,400.6	6.80	1.07
NW 8 Street OFR-I-395/SR 836 ONR	Basic	0.95	68.4	23.0	22.8	0.20	0.20	0,393.1	0,272.1	3.98	0.09

--I-395/SR 836 ONR	OnRamp	0.98	59.7	28.5	28.3	0.29	0.24	0,662.4	0,481.5	8.07	1.19
I-395/SR 836 ONR-SW 7 Street OFR	Basic	0.98	67.0	25.5	25.3	0.06	0.05	0,147.9	0,107.5	1.61	0.07
--SW 7 Street OFR	OffRamp	0.98	61.9	27.6	27.4	0.28	0.24	0,662.4	0,481.5	7.78	0.90
-- Dwntwn Dstrbtr OFR	OffRamp	0.79	60.0	22.9	22.7	0.28	0.24	0,532.4	0,387.8	6.46	0.92
Dwntwn Dstrbtr OFR-NW 2 Street ONR	Basic	0.67	68.4	17.1	17.0	0.12	0.12	0,164.4	0,118.5	1.73	0.04
--NW 2 Street ONR	OnRamp	0.75	62.8	21.7	21.6	0.27	0.24	0,382.6	0,289.8	4.61	0.47
-- Dwntwn Dstrbtr ONR	OnRamp	0.81	63.1	23.9	23.7	0.27	0.24	0,413.4	0,319.6	5.06	0.50
Dwntwn Dstrbtr ONR-SW 8 Street ONR	Basic	0.81	68.9	21.9	21.8	0.24	0.23	0,396.3	0,306.4	4.45	0.07
--SW 8 Street ONR	OnRamp	0.86	58.9	27.3	27.1	0.29	0.24	0,435.4	0,340.9	5.78	0.91
SW 8 Street ONR-SW 26 Road OFR	Basic	0.86	44.1	35.7	35.5	0.15	0.09	0,164.3	0,126.7	2.87	1.06
--SW 26 Road OFR	OffRamp	1.29	53.7	44.3	44.0	0.32	0.24	0,435.4	0,335.8	6.25	1.46
SW 26 Road OFR-US 1	Basic	0.78	69.3	20.8	20.7	0.60	0.59	0,642.0	0,495.6	7.15	0.07
Freeway			42.7	42.1	41.6	12.51	8.02	19,386.8	15,000.4	0,351.1	0,136.8

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Basic
1	D	E	E	E	E	F	F	F	F	F	E	D	E	E	C
	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Off Ramp	Off Ramp	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp	On Ramp	Basic	On Ramp	Basic	Off Ramp
1	E	C	D	C	D	C	C	C	B	C	C	C	C	E	E
	Density-Based LOS by Segment														
Segment	31														
Time Step	Basic														
1	C														
	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	.	F	.	F	.	F	F	F	F	.
	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	F	F	F	.	.	.	.	.	.	.	.	.	.	.	F
	Demand-Based LOS by Segment														
Time Step	31														
1	.														

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 SOUTHBOUND	**Analysis Period**	PM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 8.105	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 0.000		
Location	Miami-Dade County	**Analysis Direction**	SOUTHBOUND		
User Notes	Northern Section of I95 SB Corridor- (MM 8.105 to 0.000) From NW 95 ST TO END OF PROJECT AT I-95 S AND US-1-2045 No-Build				
File Name	C:\Users\Ana.Calleja\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.35300**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	1748	Level	8593	7.87	0.00	4	70
2	-	NW 95 Street ONR	On Ramp	852	Level	9299	7.37	0.00	4	70
3	NW 95 Street ONR	NW81 Street OFR	Ramp Overlap	648	Level	9299	7.37	0.00	4	70
4	-	NW81 Street OFR	Off Ramp	852	Level	9299	7.37	0.00	4	70
5	NW 81 Street OFR	NW 79 Street ONR	Basic Segment	2300	Level	8229	8.03	0.00	4	70
6	NW 79 Street ONR	NW69 Street OFR	Weaving	3331	Level	9308	7.62	0.00	5	70
7	-	NW 62 Street OFR	Off Ramp	1500	Level	8745	7.77	0.00	4	70
8	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	2237	Level	7595	8.47	0.00	4	70
9	-	NW 62 Street ONR	On Ramp	1500	Level	9084	7.34	0.00	4	70
10	NW 62 Street ONR	SR 112/I-195 OFR	Basic Segment	1519	Level	9084	7.34	0.00	5	70
11	-	SR 112/I-195 OFR	Off Ramp	1500	Level	9084	7.34	0.00	3	70
12	SR 112/I-195 OFR	SR 112/I-195 ONR	Basic Segment	4309	Level	6583	8.04	0.00	3	70
13	-	SR 112/I-195 ONR	On Ramp	1500	Level	8527	6.68	0.00	3	70
14	-	Managed Lane Egress	On Ramp	1500	Level	11614	4.90	0.00	4	70
15	Managed Lane Egress	SR 836 OFR	Basic Segment	1157	Level	11614	4.90	0.00	6	70
16	-	SR 836	Off Ramp	1500	Level	11614	4.90	0.00	4	70
17	-	I-395 OFR	Off Ramp	1500	Level	8833	4.81	0.00	4	70
18	-	NW 8 Street OFR	Off Ramp	1500	Level	7748	3.75	0.00	3	70
19	NW 8 Street OFR	I-395/SR 836 ONR	Basic Segment	1228	Level	6311	3.41	0.00	3	70
20	-	I-395/SR 836 ONR	On Ramp	1500	Level	9409	2.96	0.00	4	70
21	I-395/SR 836 ONR	SW 7 Street OFR	Basic Segment	335	Level	9409	2.96	0.00	4	70
22	-	SW 7 Street OFR	Off Ramp	1500	Level	9409	2.96	0.00	4	70
23	-	Dwntwn Dstrbtr OFR	Off Ramp	1500	Level	7292	2.94	0.00	4	70
24	Dwntwn Dstrbtr OFR	NW 2 Street ONR	Basic Segment	719	Level	4589	1.88	0.00	3	70
25	-	NW 2 Street ONR	On Ramp	1500	Level	5514	1.63	0.00	3	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	706	1.27	0.00	1	800	50
4	Off Ramp	1070	2.26	0.00	1	450	50
7	Off Ramp	1150	3.19	0.00	1	450	50
9	On Ramp	1489	1.62	0.00	1	1500	50
11	Off Ramp	2501	5.50	0.00	2	1500	50
13	On Ramp	1944	2.06	0.00	2	1500	50
14	On Ramp	3087	0.00	0.00	2	1500	50
16	Off Ramp	2781	5.19	0.00	2	1500	50
17	Off Ramp	1085	12.40	0.00	2	210	50
18	Off Ramp	1437	5.26	0.00	1	210	50
20	On Ramp	3098	2.04	0.00	2	1000	50
22	Off Ramp	2117	3.04	0.00	1	190	50
23	Off Ramp	2703	4.72	0.00	2	293	50
25	On Ramp	925	0.36	0.00	1	545	50
26	On Ramp	1098	0.00	0.00	1	950	50
28	On Ramp	305	0.96	0.00	1	1367	50
30	Off Ramp	2942	1.67	0.00	2	1500	40

Weaving Segment Data

	Ramp	On-Ramp	Off-Ramp

26	-	Dwntwn Distrbtr ONR	On Ramp	1500	Level	6612	1.36	0.00	3	70
27	Dwntwn Dstrbtr ONR	SW8 Street ONR	Basic Segment	1438	Level	6612	1.36	0.00	3	70
28	-	SW 8 Street ONR	On Ramp	1500	Level	6917	1.34	0.00	3	70
29	SW 8 Street ONR	SW 26 Road OFR	Basic Segment	566	Level	6917	1.34	0.00	3	70
30	-	SW 26 Road OFR	Off Ramp	1500	Level	6917	1.34	0.00	2	70
31	SW 26 Road OFR	US 1	Basic Segment	3643	Level	3975	1.10	0.00	2	70

Seg #	to Ramp Prop.	Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
6	0.050	1079	4.50	0.00	1	50	563	5.31	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
6	OneSide	2530	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh hrs)
1	NW 95 Street OFR	NW 95 Street ONR	Basic Segment	8593	8580	9600	9237	0.93	0.93	718	52.2	41.1	39.6	0.38	0.28	0.1	0.1	711.2	710.1	13.6	3.5
2	-	NW 95 Street ONR	On Ramp	9299	9240	9600	9259	1.00	1.00	0	58.9	40.6	39.1	0.16	0.14	0.0	0.0	375.1	372.8	6.3	1.0
3	NW 95 Street ONR	NW81 Street OFR	Ramp Overlap	9299	9240	9600	9259	1.00	1.00	0	58.9	40.6	39.1	0.13	0.11	0.0	0.0	285.3	283.5	4.8	0.8
4	-	NW81 Street OFR	Off Ramp	9299	9240	9600	9259	1.00	1.00	0	63.4	37.8	36.4	0.15	0.14	0.0	0.0	375.1	372.8	5.9	0.6
5	NW 81 Street OFR	NW 79 Street ONR	Basic Segment	8229	8220	9600	9229	0.89	0.89	0	59.8	35.7	34.4	0.44	0.37	0.1	0.1	896.2	895.2	15.0	2.2
6	NW 79 Street ONR	NW69 Street OFR	Weaving	9308	8787	11379	10961	0.85	0.80	2115	40.2	43.7	42.1	0.94	0.54	0.4	1.0	1468.0	1385.9	34.4	14.7
7	-	NW 62 Street OFR	Off Ramp	8745	7980	9600	9241	0.95	0.86	1500	39.1	51.0	49.1	0.44	0.24	0.2	0.2	621.1	566.8	14.5	6.4
8	NW 62 Street OFR	NW 62 Street ONR	Basic Segment	7595	6451	9600	9210	0.82	0.70	2237	24.2	66.6	63.9	1.05	0.36	0.7	0.7	804.5	683.3	28.2	18.5
9	-	NW 62 Street ONR	On Ramp	9084	7390	9600	9260	0.98	0.80	1500	26.1	70.7	68.2	0.65	0.24	0.4	3.0	645.2	524.9	20.1	12.6
10	NW 62 Street ONR	SR 112/I-195 OFR	Basic Segment	9084	6960	12000	11575	0.78	0.60	1519	14.5	95.9	92.5	1.19	0.25	0.9	0.9	653.3	500.6	34.5	27.3
11	-	SR 112/I-195 OFR	Off Ramp	9084	6960	7200	6945	1.31	1.00	0	58.4	41.2	39.7	0.29	0.24	0.0	0.0	645.2	494.3	8.5	1.4
12	SR 112/I-195 OFR	SR 112/I-195 ONR	Basic Segment	6583	5040	7200	6922	0.95	0.73	0	66.5	26.3	25.3	0.74	0.70	0.0	0.0	1343.1	1028.3	15.5	0.8
13	-	SR 112/I-195 ONR	On Ramp	8527	6960	7200	6967	1.22	1.00	0	53.9	44.1	42.7	0.32	0.24	0.1	0.1	605.6	494.3	9.2	2.1
14	-	Managed Lane Egress	On Ramp	11614	9060	9600	9370	1.24	0.97	0	45.2	50.9	49.7	0.38	0.24	0.1	3.7	824.9	643.5	14.2	5.0
15	Managed Lane Egress	SR 836 OFR	Basic Segment	11614	9060	14400	14055	0.83	0.64	0	67.1	23.1	22.5	0.20	0.19	0.0	0.0	636.2	496.3	7.4	0.3
16	-	SR 836	Off Ramp	11614	9060	9600	9370	1.24	0.97	0	60.8	38.1	37.2	0.28	0.24	0.0	0.0	824.9	643.5	10.6	1.4
17	-	I-395 OFR	Off Ramp	8833	6900	9600	9374	0.94	0.74	0	65.3	27.0	26.4	0.26	0.24	0.0	0.0	627.3	490.1	7.5	0.5
18	-	NW 8 Street OFR	Off Ramp	7748	6060	7200	7067	1.10	0.86	0	58.5	35.2	34.6	0.29	0.24	0.0	0.0	550.3	430.4	7.4	1.2
19	NW 8 Street OFR	I-395/SR 836 ONR	Basic Segment	6311	4920	7200	7079	0.89	0.69	0	67.5	24.7	24.3	0.21	0.20	0.0	0.0	366.9	286.1	4.2	0.2
20	-	I-395/SR 836 ONR	On Ramp	9409	7020	9600	9460	0.99	0.74	0	56.1	31.5	31.1	0.30	0.24	0.1	3.6	668.3	498.6	8.9	1.8
21	I-395/SR 836 ONR	SW 7 Street OFR	Basic Segment	9409	7020	9600	9460	0.99	0.74	0	66.1	26.9	26.6	0.06	0.05	0.0	0.0	149.2	111.3	1.7	0.1
22	-	SW 7 Street OFR	Off Ramp	9409	7020	9600	9460	0.99	0.74	0	61.1	29.2	28.7	0.28	0.24	0.0	0.0	668.3	498.6	8.2	1.0
		Dwntwn	Off																		

23	-	Dstrbtr OFR	Ramp	7292	5460	9600	9461	0.77	0.58	0	59.7	23.2	22.8	0.29	0.24	0.0	0.0	517.9	387.8	6.5	1.0
24	Dwntwn Dstrbtr OFR	NW 2 Street ONR	Basic Segment	4589	3420	7200	7133	0.64	0.48	0	68.3	16.8	16.7	0.12	0.12	0.0	0.0	156.2	116.4	1.7	0.0
25	-	NW 2 Street ONR	On Ramp	5514	4252	7200	7142	0.77	0.60	552	68.6	20.6	20.5	0.25	0.24	0.0	0.0	391.6	302.0	4.4	0.1
26	-	Dwntwn Distrbtr ONR	On Ramp	6612	5030	7200	7151	0.92	0.70	1500	36.5	45.9	45.6	0.47	0.24	0.2	0.4	469.6	357.2	9.8	4.7
27	Dwntwn Dstrbtr ONR	SW8 Street ONR	Basic Segment	6612	4766	7200	7151	0.92	0.67	1438	24.5	64.9	64.5	0.67	0.23	0.4	0.4	450.2	324.5	13.3	8.6
28	-	SW 8 Street ONR	On Ramp	6917	4834	7200	7152	0.97	0.68	1500	20.0	80.4	79.8	0.85	0.24	0.6	0.6	491.3	343.3	17.1	12.2
29	SW 8 Street ONR	SW 26 Road OFR	Basic Segment	6917	4740	7200	7152	0.97	0.66	566	17.4	90.7	90.0	0.37	0.09	0.3	0.3	185.4	127.0	7.3	5.5
30	-	SW 26 Road OFR	Off Ramp	6917	4740	4800	4768	1.45	0.99	0	52.4	45.6	45.3	0.33	0.24	0.1	0.1	491.3	336.6	6.4	1.6
31	SW 26 Road OFR	US 1	Basic Segment	3975	2760	4800	4774	0.83	0.58	0	69.6	19.9	19.8	0.59	0.59	0.0	0.0	685.6	476.1	6.8	0.0

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 Street OFR-NW 95 Street ONR	Basic	0.93	52.2	41.1	39.6	0.38	0.28	0,711.2	0,710.1	13.62	3.47
--NW 95 Street ONR	OnRamp	1.00	58.9	40.6	39.1	0.16	0.14	0,375.1	0,372.8	6.33	1.00
NW 95 Street ONR-NW81 Street OFR	RampOverlap	1.00	58.9	40.6	39.1	0.13	0.11	0,285.3	0,283.5	4.81	0.76
--NW81 Street OFR	OffRamp	1.00	63.4	37.8	36.4	0.15	0.14	0,375.1	0,372.8	5.88	0.55
NW 81 Street OFR-NW 79 Street ONR	Basic	0.89	59.8	35.7	34.4	0.44	0.37	0,896.2	0,895.2	14.97	2.18
NW 79 Street ONR-NW69 Street OFR	Weaving	0.85	40.2	43.7	42.1	0.94	0.54	1,468.0	1,385.9	34.45	14.65
--NW 62 Street OFR	OffRamp	0.95	39.1	51.0	49.1	0.44	0.24	0,621.1	0,566.8	14.48	6.38
NW 62 Street OFR-NW 62 Street ONR	Basic	0.82	24.2	66.6	63.9	1.05	0.36	0,804.5	0,683.3	28.24	18.48
--NW 62 Street ONR	OnRamp	0.98	26.1	70.7	68.2	0.65	0.24	0,645.2	0,524.9	20.07	12.58
NW 62 Street ONR-SR 112/I-195 OFR	Basic	0.78	14.5	95.9	92.5	1.19	0.25	0,653.3	0,500.6	34.50	27.35
--SR 112/I-195 OFR	OffRamp	1.31	58.4	41.2	39.7	0.29	0.24	0,645.2	0,494.3	8.46	1.40
SR 112/I-195 OFR-SR 112/I-195 ONR	Basic	0.95	66.5	26.3	25.3	0.74	0.70	1,343.1	1,028.3	15.46	0.77
--SR 112/I-195 ONR	OnRamp	1.22	53.9	44.1	42.7	0.32	0.24	0,605.6	0,494.3	9.18	2.11
-- Managed Lane Egress	OnRamp	1.24	45.2	50.9	49.7	0.38	0.24	0,824.9	0,643.5	14.24	5.05
Managed Lane Egress-SR 836 OFR	Basic	0.83	67.1	23.1	22.5	0.20	0.19	0,636.2	0,496.3	7.40	0.30
--SR 836	OffRamp	1.24	60.8	38.1	37.2	0.28	0.24	0,824.9	0,643.5	10.58	1.38
--I-395 OFR	OffRamp	0.94	65.3	27.0	26.4	0.26	0.24	0,627.3	0,490.1	7.50	0.50
--NW 8 Street OFR	OffRamp	1.10	58.5	35.2	34.6	0.29	0.24	0,550.3	0,430.4	7.36	1.21
NW 8 Street OFR-I-395/SR 836 ONR	Basic	0.89	67.5	24.7	24.3	0.21	0.20	0,366.9	0,286.1	4.24	0.15

--I-395/SR 836 ONR	OnRamp	0.99	56.1	31.5	31.1	0.30	0.24	0,668.3	0,498.6	8.89	1.76
I-395/SR 836 ONR-SW 7 Street OFR	Basic	0.99	66.1	26.9	26.6	0.06	0.05	0,149.2	0,111.3	1.68	0.09
--SW 7 Street OFR	OffRamp	0.99	61.1	29.2	28.7	0.28	0.24	0,668.3	0,498.6	8.16	1.04
-- Dwntwn Dstrbtr OFR	OffRamp	0.77	59.7	23.2	22.8	0.29	0.24	0,517.9	0,387.8	6.49	0.95
Dwntwn Dstrbtr OFR-NW 2 Street ONR	Basic	0.64	68.3	16.8	16.7	0.12	0.12	0,156.2	0,116.4	1.70	0.04
--NW 2 Street ONR	OnRamp	0.77	68.6	20.6	20.5	0.25	0.24	0,391.6	0,302.0	4.40	0.09
-- Dwntwn Distrbtr ONR	OnRamp	0.92	36.5	45.9	45.6	0.47	0.24	0,469.6	0,357.2	9.78	4.68
Dwntwn Dstrbtr ONR-SW8 Street ONR	Basic	0.92	24.5	64.9	64.5	0.67	0.23	0,450.2	0,324.5	13.26	8.63
--SW 8 Street ONR	OnRamp	0.97	20.0	80.4	79.8	0.85	0.24	0,491.3	0,343.3	17.12	12.22
SW 8 Street ONR-SW 26 Road OFR	Basic	0.97	17.4	90.7	90.0	0.37	0.09	0,185.4	0,127.0	7.29	5.47
--SW 26 Road OFR	OffRamp	1.45	52.4	45.6	45.3	0.33	0.24	0,491.3	0,336.6	6.43	1.62
SW 26 Road OFR-US 1	Basic	0.83	69.6	19.9	19.8	0.59	0.59	0,685.6	0,476.1	6.84	0.04
Freeway			42.9	42.6	41.5	13.05	8.02	18,584.3	15,181.9	0,353.8	0,136.9

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Basic
1	E	E	E	E	E	E	F	F	F	F	E	D	E	E	C
	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Off Ramp	Off Ramp	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp	On Ramp	Basic	On Ramp	Basic	Off Ramp
1	E	C	E	C	D	D	D	C	B	C	F	F	F	F	E
	Density-Based LOS by Segment														
Segment	31														
Time Step	Basic														
1	C														
	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	·	F	F	F	·	·	·	·	·	·	F	·	F	F	·
	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	F	·	F	·	·	·	·	·	·	·	·	·	·	·	F
	Demand-Based LOS by Segment														
Time Step	31														
1	·														

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	**Freeway Name**	I-95 SOUTHBOUND	**Analysis Period**	AM Peak
Analysis Date	3/22/2017 9:33:17 AM	**From**	MM 17.260	**Version Date**	5/15/15
Agency	F R ALEMAN & ASSOCIATES	**To**	MM 8.105		
Location	Miami-Dade County	**Analysis Direction**	SOUTHBOUND		
User Notes	Northern Section of I95 SB Corridor- (MM 17.260 to 8.105) From END of Project I95 Broward County Line TO NW 95TH ST-2045 No-Build				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	**Time Period Duration (min)**	15	**Facility Length (mi)**	**8.97800**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	Broward County Line	Ives Dairy Road OFR	Basic Segment	130	Level	8014	3.93	0.00	3	70
2	-	Ives Dairy R0ad OFR	Off Ramp	1500	Level	8014	3.93	0.00	3	70
3	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	4600	Level	6289	4.09	0.00	4	70
4	-	Ives Dairy Road ONR	On Ramp	1500	Level	7765	3.62	0.00	3	70
5	Ives Dairy Road ONR	Managed Lane Ingress	Basic Segment	2122	Level	7765	3.62	0.00	3	70
6	-	Managed Lane Ingress	Off Ramp	1500	Level	7765	3.62	0.00	3	70
7	Managed Lane Ingress	Miami Gardens Dr	Basic Segment	1193	Level	5782	4.86	0.00	3	70
8	-	MIami Gardens Dr OFR	Off Ramp	1500	Level	5782	4.86	0.00	3	70
9	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	850	Level	4986	5.21	0.00	3	70
10	-	Miami Gardens Dr ONR	On Ramp	1000	Level	5826	4.81	0.00	3	70
11	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	579	Level	5826	4.81	0.00	3	70
12	-	Managed Lane Egress	On Ramp	1500	Level	7179	4.60	0.00	3	70
13	Managed Lane Egress	Turnpike SR 826 OFR	Basic Segment	2291	Level	7179	4.60	0.00	4	70
14	-	FL Trnpke/SR 826 OFR	Off Ramp	1500	Level	7179	4.60	0.00	4	70
15	FL Trnpke/SR 826 OFR	SR 7/US-441 ONR	Basic Segment	1204	Level	4017	5.30	0.00	3	70
16	-	SR 7/US-441 ONR	On Ramp	1500	Level	4817	4.70	0.00	3	70
17	SR 7/US-441 ONR	NW 167 Street ONR	Basic Segment	317	Level	4817	4.70	0.00	3	70
18	-	NW 167 Street ONR	On Ramp	200	Level	5152	4.47	0.00	3	70
19	NW167 Street ONR	FL Trnpke/SR 826 ONR	Basic Segment	1500	Level	5152	4.47	0.00	3	70
20	-	FL Trnpke/SR 826 ONR	On Ramp	1500	Level	9292	3.38	0.00	4	70
21	FL Trnpke/SR 826 ONR	Managed Lane Ingress	Basic Segment	907	Level	9292	3.38	0.00	4	70
22	-	Managed Lane Ingress	Off Ramp	1500	Level	9292	3.38	0.00	4	70
23	Managed Lane Ingress	NW 151 Street ONR	Basic Segment	572	Level	8008	3.92	0.00	4	70
24	-	NW151 Street ONR	On Ramp	530	Level	8417	3.96	0.00	4	70
25	NW151 Street ONR	Opa Locka Blvd OFR	Ramp Overlap	970	Level	8417	3.96	0.00	4	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	1725	3.34	0.00	1	900	50
4	On Ramp	1476	1.60	0.00	1	975	50
6	Off Ramp	1983	0.00	0.00	1	200	50
8	Off Ramp	796	2.67	0.00	1	200	50
10	On Ramp	840	2.41	0.00	1	1110	50
12	On Ramp	1353	3.74	0.00	1	450	40
14	Off Ramp	3162	3.72	0.00	2	0	50
16	On Ramp	800	1.68	0.00	1	755	50
18	On Ramp	335	1.19	0.00	1	702	50
20	On Ramp	4140	2.02	0.00	2	900	50
22	Off Ramp	1284	0.00	0.00	1	705	40
24	On Ramp	409	4.74	0.00	1	520	50
26	Off Ramp	259	4.25	0.00	1	272	50
30	On Ramp	304	0.68	0.00	1	1000	50
32	On Ramp	1122	1.52	0.00	1	745	50
34	Off Ramp	1445	2.35	0.00	1	203	50

26	-	Opa Locka Blvd OFR	Off Ramp	530	Level	8417	3.96	0.00	4	70
27	Opa Locka Blvd OFR	NW 135 Street ONR	Basic Segment	2286	Level	8158	3.95	0.00	4	70
28	NW 135 Street ONR	NW125 Street OFR	Weaving	2235	Level	8871	3.85	0.00	5	70
29	NW 125 Street OFR	NW125 Street ONR	Basic Segment	1570	Level	8170	4.09	0.00	4	70
30	-	NW125 Street ONR	On Ramp	1500	Level	8474	3.97	0.00	4	70
31	NW125 Street ONR	NW119 Street ONR	Basic Segment	475	Level	8474	3.97	0.00	4	70
32	-	NW 119 Street ONR	On Ramp	1500	Level	9596	3.68	0.00	4	70
33	NW 119 Street ONR	NW103 Street OFR	Basic Segment	190	Level	9596	3.68	0.00	4	70
34	-	NW 103 Street OFR	Off Ramp	1500	Level	9596	3.68	0.00	4	70
35	NW 103 Street OFR	NW 103 Street ONR	Basic Segment	1490	Level	8151	3.92	0.00	4	70
36	NW103 Street ONR	NW 95 Street OFR	Weaving	1637	Level	9178	3.74	0.00	5	70
37	NW 95 Street OFR	I-95 MAINLINE	Basic Segment	25	Level	8799	3.82	0.00	4	70

Weaving Segment Data										
Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp			
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
28	0.050	713	2.70	0.00	1	50	701	1.09	0.00	1	50
36	0.050	1027	2.35	0.00	1	50	379	1.88	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
28	OneSide	2235	2	1	1	0
36	OneSide	1637	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	V (v h
1	Broward County Line	Ives Dairy Road OFR	Basic Segment	8014	7080	7200	7061	1.13	1.00	0	53.1	45.3	44.4	0.03	0.02	0.0	0.0	49.3	43.6	0.8	
2	-	Ives Dairy R0ad OFR	Off Ramp	8014	7080	7200	7061	1.13	1.00	0	60.1	40.0	39.2	0.28	0.24	0.0	0.0	569.2	502.8	8.4	
3	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	6289	5520	9600	9408	0.67	0.59	0	69.5	20.3	19.9	0.75	0.75	0.0	0.0	1369.8	1202.3	17.3	
4	-	Ives Dairy Road ONR	On Ramp	7765	7020	7200	7072	1.10	0.99	0	44.0	53.9	52.9	0.39	0.24	0.1	0.1	551.5	498.6	11.3	
5	Ives Dairy Road ONR	Managed Lane Ingress	Basic Segment	7765	7020	7200	7072	1.10	0.99	0	53.8	44.3	43.5	0.45	0.34	0.1	0.1	780.2	705.3	13.1	
6	-	Managed Lane Ingress	Off Ramp	7765	7020	7200	7072	1.10	0.99	0	58.9	40.4	39.7	0.29	0.24	0.0	0.0	551.5	498.6	8.5	
7	Managed Lane Ingress	Miami Gardens Dr	Basic Segment	5782	5220	7200	7029	0.82	0.74	0	66.1	27.0	26.3	0.21	0.19	0.0	0.0	326.6	294.9	4.5	
8	-	MIami Gardens Dr OFR	Off Ramp	5782	5220	7200	7029	0.82	0.74	0	62.1	28.7	28.0	0.27	0.24	0.0	0.0	410.7	370.7	6.0	
9	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	4986	4500	7200	7017	0.71	0.64	0	68.7	22.4	21.8	0.14	0.14	0.0	0.0	200.7	181.1	2.6	
10	-	Miami Gardens Dr ONR	On Ramp	5826	5340	7200	7031	0.83	0.76	0	6.7	269.1	262.8	1.68	0.16	1.5	1.5	275.9	252.8	37.5	
11	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	5826	5340	7200	7031	0.83	0.76	0	52.4	34.8	34.0	0.13	0.09	0.0	0.0	159.7	146.4	2.8	
12	-	Managed Lane Egress	On Ramp	7179	6720	7200	7038	1.02	0.95	0	36.0	63.4	62.0	0.47	0.24	0.2	0.2	509.9	477.3	13.3	
13	Managed Lane Egress	Turnpike SR 826 OFR	Basic Segment	7179	6720	9600	9384	0.77	0.72	0	66.9	25.7	25.1	0.39	0.37	0.0	0.0	778.7	729.0	10.9	
14	-	FL Trnpke/SR 826 OFR	Off Ramp	7179	6720	9600	9384	0.77	0.72	0	59.0	29.1	28.5	0.29	0.24	0.0	0.0	509.9	477.3	8.1	
15	FL Trnpke/SR 826 OFR	SR 7/US-441 ONR	Basic Segment	4017	3720	7200	7014	0.57	0.53	0	68.8	18.5	18.0	0.20	0.20	0.0	0.0	229.0	212.1	3.1	
16	-	SR 7/US-441 ONR	On Ramp	4817	4560	7200	7035	0.68	0.65	0	58.7	26.4	25.8	0.29	0.24	0.0	0.0	342.1	323.9	5.5	
17	SR 7/US-441 ONR	NW 167 Street ONR	Basic Segment	4817	4560	7200	7035	0.68	0.65	0	67.4	23.1	22.5	0.05	0.05	0.0	0.0	72.3	68.4	1.0	

18	-	NW 167 Street ONR	On Ramp	5152	4860	7200	7043	0.73	0.69	0	4.6	359.3	351.4	0.49	0.03	0.5	0.5	48.8	46.0	10.0	
19	NW167 Street ONR	FL Trnpke/SR 826 ONR	Basic Segment	5152	4860	7200	7043	0.73	0.69	0	53.5	31.0	30.3	0.32	0.24	0.1	0.1	365.9	345.2	6.5	
20	-	FL Trnpke/SR 826 ONR	On Ramp	9292	6960	9600	9441	0.98	0.74	0	45.8	38.2	37.6	0.37	0.24	0.1	7.4	659.9	494.3	10.8	
21	FL Trnpke/SR 826 ONR	Managed Lane Ingress	Basic Segment	9292	6960	9600	9441	0.98	0.74	0	66.2	26.7	26.3	0.16	0.15	0.0	0.0	399.0	298.9	4.5	
22	-	Managed Lane Ingress	Off Ramp	9292	6960	9600	9441	0.98	0.74	0	63.6	27.8	27.4	0.27	0.24	0.0	0.0	659.9	494.3	7.8	
23	Managed Lane Ingress	NW 151 Street ONR	Basic Segment	8008	6000	9600	9415	0.85	0.64	0	68.7	22.2	21.8	0.09	0.09	0.0	0.0	216.9	162.5	2.4	
24	-	NW151 Street ONR	On Ramp	8417	6420	9600	9414	0.89	0.68	0	63.1	25.9	25.4	0.10	0.09	0.0	0.0	211.2	161.1	2.6	
25	NW151 Street ONR	Opa Locka Blvd OFR	Ramp Overlap	8417	6420	9600	9414	0.89	0.68	0	63.1	25.9	25.4	0.17	0.16	0.0	0.0	386.6	294.9	4.7	
26	-	Opa Locka Blvd OFR	Off Ramp	8417	6420	9600	9414	0.89	0.68	0	66.3	24.7	24.2	0.09	0.09	0.0	0.0	211.2	161.1	2.4	
27	Opa Locka Blvd OFR	NW 135 Street ONR	Basic Segment	8158	6240	9600	9414	0.87	0.66	0	68.2	23.3	22.9	0.38	0.37	0.0	0.0	883.0	675.4	9.9	
28	NW 135 Street ONR	NW125 Street OFR	Weaving	8871	6960	11314	11100	0.80	0.63	0	53.7	27.1	26.6	0.47	0.36	0.1	0.1	938.8	736.5	13.7	
29	NW 125 Street OFR	NW125 Street ONR	Basic Segment	8170	6420	9600	9408	0.87	0.68	0	67.8	24.2	23.7	0.26	0.25	0.0	0.0	607.3	477.2	7.0	
30	-	NW125 Street ONR	On Ramp	8474	6720	9600	9413	0.90	0.71	0	63.4	27.0	26.5	0.27	0.24	0.0	0.0	601.8	477.3	7.5	
31	NW125 Street ONR	NW119 Street ONR	Basic Segment	8474	6720	9600	9413	0.90	0.71	0	66.9	25.6	25.1	0.08	0.08	0.0	0.0	190.6	151.1	2.3	
32	-	NW 119 Street ONR	On Ramp	9596	7800	9600	9427	1.02	0.83	0	61.3	32.3	31.7	0.28	0.24	0.0	0.0	681.5	554.0	9.0	
33	NW 119 Street ONR	NW103 Street OFR	Basic Segment	9596	7800	9600	9427	1.02	0.83	0	62.8	31.6	31.0	0.03	0.03	0.0	0.0	86.3	70.2	1.1	
34	-	NW 103 Street OFR	Off Ramp	9596	7800	9600	9427	1.02	0.83	0	63.0	31.5	30.9	0.27	0.24	0.0	0.0	681.5	554.0	8.8	
35	NW 103 Street OFR	NW 103 Street ONR	Basic Segment	8151	6660	9600	9416	0.87	0.71	0	67.1	25.3	24.8	0.25	0.24	0.0	0.0	575.0	469.9	7.0	
36	NW103 Street ONR	NW 95 Street OFR	Weaving	9178	7680	11119	10915	0.84	0.70	0	52.1	34.5	33.9	0.36	0.27	0.1	0.1	711.4	595.3	11.4	
37	NW 95 Street OFR	I-95 MAINLINE	Basic Segment	8799	7380	9600	9420	0.93	0.78	0	64.6	29.1	28.5	0.00	0.00	0.0	0.0	10.4	8.7	0.1	

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
Broward County Line-Ives Dairy Road OFR	Basic	1.13	53.1	45.3	44.4	0.03	0.02	0,049.3	0,043.6	0.82	0.20
--Ives Dairy R0ad OFR	OffRamp	1.13	60.1	40.0	39.2	0.28	0.24	0,569.2	0,502.8	8.36	1.18
Ives Dairy Road OFR-Ives Dairy Road ONR	Basic	0.67	69.5	20.3	19.9	0.75	0.75	1,369.8	1,202.3	17.30	0.12
--Ives Dairy Road ONR	OnRamp	1.10	44.0	53.9	52.9	0.39	0.24	0,551.5	0,498.6	11.32	4.20
Ives Dairy Road ONR-Managed Lane Ingress	Basic	1.10	53.8	44.3	43.5	0.45	0.34	0,780.2	0,705.3	13.11	3.04
--Managed Lane Ingress	OffRamp	1.10	58.9	40.4	39.7	0.29	0.24	0,551.5	0,498.6	8.46	1.34
Managed Lane Ingress-Miami Gardens Dr	Basic	0.82	66.1	27.0	26.3	0.21	0.19	0,326.6	0,294.9	4.46	0.25
--MIami Gardens Dr OFR	OffRamp	0.82	62.1	28.7	28.0	0.27	0.24	0,410.7	0,370.7	5.97	0.67
Miami Gardens Dr OFR-Miami Gardens Dr ONR	Basic	0.71	68.7	22.4	21.8	0.14	0.14	0,200.7	0,181.1	2.64	0.05

--Miami Gardens Dr ONR	OnRamp	0.83	6.7	269.1	262.8	1.68	0.16	0,275.9	0,252.8	37.46	33.85
Miami Gardens Dr ONR-Managed Lane Egress	Basic	0.83	52.4	34.8	34.0	0.13	0.09	0,159.7	0,146.4	2.79	0.70
-- Managed Lane Egress	OnRamp	1.02	36.0	63.4	62.0	0.47	0.24	0,509.9	0,477.3	13.27	6.45
Managed Lane Egress-Turnpike SR 826 OFR	Basic	0.77	66.9	25.7	25.1	0.39	0.37	0,778.7	0,729.0	10.90	0.49
--FL Trnpke/SR 826 OFR	OffRamp	0.77	59.0	29.1	28.5	0.29	0.24	0,509.9	0,477.3	8.09	1.27
FL Trnpke/SR 826 OFR-SR 7/US-441 ONR	Basic	0.57	68.8	18.5	18.0	0.20	0.20	0,229.0	0,212.1	3.08	0.05
--SR 7/US-441 ONR	OnRamp	0.68	58.7	26.4	25.8	0.29	0.24	0,342.1	0,323.9	5.52	0.89
SR 7/US-441 ONR-NW 167 Street ONR	Basic	0.68	67.4	23.1	22.5	0.05	0.05	0,072.3	0,068.4	1.02	0.04
--NW 167 Street ONR	OnRamp	0.73	4.6	359.3	351.4	0.49	0.03	0,048.8	0,046.0	10.00	9.34
NW167 Street ONR-FL Trnpke/SR 826 ONR	Basic	0.73	53.5	31.0	30.3	0.32	0.24	0,365.9	0,345.2	6.45	1.52
--FL Trnpke/SR 826 ONR	OnRamp	0.98	45.8	38.2	37.6	0.37	0.24	0,659.9	0,494.3	10.79	3.73
FL Trnpke/SR 826 ONR-Managed Lane Ingress	Basic	0.98	66.2	26.7	26.3	0.16	0.15	0,399.0	0,298.9	4.51	0.24
-- Managed Lane Ingress	OffRamp	0.98	63.6	27.8	27.4	0.27	0.24	0,659.9	0,494.3	7.77	0.71
Managed Lane Ingress-NW 151 Street ONR	Basic	0.85	68.7	22.2	21.8	0.09	0.09	0,216.9	0,162.5	2.36	0.04
--NW151 Street ONR	OnRamp	0.89	63.1	25.9	25.4	0.10	0.09	0,211.2	0,161.1	2.55	0.25
NW151 Street ONR-Opa Locka Blvd OFR	RampOverlap	0.89	63.1	25.9	25.4	0.17	0.16	0,386.6	0,294.9	4.68	0.46
--Opa Locka Blvd OFR	OffRamp	0.89	66.3	24.7	24.2	0.09	0.09	0,211.2	0,161.1	2.43	0.13
Opa Locka Blvd OFR -NW 135 Street ONR	Basic	0.87	68.2	23.3	22.9	0.38	0.37	0,883.0	0,675.4	9.90	0.25
NW 135 Street ONR-NW125 Street OFR	Weaving	0.80	53.7	27.1	26.6	0.47	0.36	0,938.8	0,736.5	13.73	3.20
NW 125 Street OFR-NW125 Street ONR	Basic	0.87	67.8	24.2	23.7	0.26	0.25	0,607.3	0,477.2	7.04	0.22
--NW125 Street ONR	OnRamp	0.90	63.4	27.0	26.5	0.27	0.24	0,601.8	0,477.3	7.52	0.70
NW125 Street ONR-NW119 Street ONR	Basic	0.90	66.9	25.6	25.1	0.08	0.08	0,190.6	0,151.1	2.26	0.10
--NW 119 Street ONR	OnRamp	1.02	61.3	32.3	31.7	0.28	0.24	0,681.5	0,554.0	9.04	1.13
NW 119 Street ONR - NW103 Street OFR	Basic	1.02	62.8	31.6	31.0	0.03	0.03	0,086.3	0,070.2	1.12	0.11
--NW 103 Street OFR	OffRamp	1.02	63.0	31.5	30.9	0.27	0.24	0,681.5	0,554.0	8.79	0.88

NW 103 Street OFR-NW 103 Street ONR	Basic	0.87	67.1	25.3	24.8	0.25	0.24	0,575.0	0,469.9	7.00	0.29
NW103 Street ONR-NW 95 Street OFR	Weaving	0.84	52.1	34.5	33.9	0.36	0.27	0,711.4	0,595.3	11.43	2.92
NW 95 Street OFR-I-95 MAINLINE	Basic	0.93	64.6	29.1	28.5	0.00	0.00	0,010.4	0,008.7	0.14	0.01
Freeway			50.0	35.1	34.4	11.04	7.70	16,814.1	14,212.9	0,284.1	0,081.0

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic
1	F	E	C	E	E	E	D	D	C	E	D	E	C	D	C
	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	On Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Weaving	Basic	On Ramp
1	C	C	E	D	E	D	C	C	C	C	C	C	C	C	C
	Density-Based LOS by Segment														
Segment	31	32	33	34	35	36	37								
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	Weaving	Basic								
1	C	D	D	D	C	D	D								
	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	F	F	·	F	F	F	·	·	·	·	·	F	·	·	·
	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·
	Demand-Based LOS by Segment														
Time Step	31	32	33	34	35	36	37								
1	·	F	F	F	·	·	·								

HCS 2010 Freeway Facilities

Project Properties

Analyst	OS	Freeway Name	I-95 SOUTHBOUND	Analysis Period	PM Peak
Analysis Date	3/22/2017 9:33:17 AM	From	MM 17.260	Version Date	5/15/15
Agency	F R ALEMAN & ASSOCIATES	To	MM 8.105		
Location	Miami-Dade County	Analysis Direction	SOUTHBOUND		
User Notes	Northern Section of I95 SB Corridor- (MM 17.260 to 8.105) From END of Project I95 Broward County Line TO NW 95TH ST-2045-No-Build				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	190	Time Period Duration (min)	15	Facility Length (mi)	8.95300

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	Broward County Line	Ives Dairy Road OFR	Basic Segment	130	Level	7963	6.02	0.00	3	70
2	-	Ives Dairy Road OFR	Off Ramp	1500	Level	7963	6.02	0.00	3	70
3	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	4600	Level	5738	8.05	0.00	4	70
4	-	Ives Dairy Road ONR	On Ramp	1500	Level	7079	6.69	0.00	3	70
5	Ives Dairy Road ONR	Managed Lane Ingress	Basic Segment	2122	Level	7079	6.69	0.00	3	70
6	-	Managed Lane Ingress	Off Ramp	1500	Level	7079	6.69	0.00	3	70
7	Managed Lane Ingress	Miami Gardens Dr	Basic Segment	1193	Level	5345	8.86	0.00	3	70
8	-	Miami Gardens Dr OFR	Off Ramp	1500	Level	5345	8.86	0.00	3	70
9	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	850	Level	4081	11.07	0.00	3	70
10	-	Miami Gardens Dr ONR	On Ramp	1000	Level	4714	9.87	0.00	3	70
11	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	579	Level	4714	9.87	0.00	3	70
12	-	Managed Lane Egress	On Ramp	1500	Level	4980	9.94	0.00	3	70
13	Managed Lane Egress	Turnpike SR 826 OFR	Basic Segment	2291	Level	4980	9.94	0.00	4	70
14	-	FL Turnpk/SR 826 OFR	Off Ramp	1500	Level	4980	9.94	0.00	4	70
15	FL Turnpk/SR 826 OFR	SR 7/US-441 ONR	Basic Segment	1204	Level	3219	11.75	0.00	3	70
16	-	SR 7/US-441 ONR	On Ramp	1500	Level	4252	12.52	0.00	3	70
17	SR 7/US-441 ONR	NW 167 Street ONR	Basic Segment	317	Level	4252	12.52	0.00	3	70
18	-	NW 167 Street ONR	On Ramp	200	Level	4624	11.86	0.00	3	70
19	NW 167 Street ONR	FL Trnpke/SR 826 ONR	Basic Segment	1369	Level	4624	11.86	0.00	3	70
20	-	FL Trnpke/SR 826 ONR	On Ramp	1500	Level	8548	8.93	0.00	4	70
21	FL Trnpke/SR 826 ONR	Managed LAne Ingress	Basic Segment	907	Level	8548	8.93	0.00	4	70
22	-	Managed Lane Ingress	Off Ramp	1500	Level	8548	8.93	0.00	4	70
23	Managed Lane Ingress	NW151 Street ONR	Basic Segment	572	Level	7102	10.75	0.00	4	70
24	-	NW 151 Street ONR	On Ramp	530	Level	8050	9.74	0.00	4	70
25	NW 151 Street ONR	Opa Locka Blvd OFR	Ramp Overlap	970	Level	8050	9.74	0.00	4	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	2225	0.79	0.00	2	900	50
4	On Ramp	1341	0.86	0.00	1	975	50
6	Off Ramp	1734	0.00	0.00	1	200	50
8	Off Ramp	1264	1.69	0.00	1	200	50
10	On Ramp	633	2.11	0.00	1	1110	50
12	On Ramp	266	11.20	0.00	1	450	40
14	Off Ramp	1761	6.63	0.00	2	0	50
16	On Ramp	1033	14.90	0.00	1	755	50
18	On Ramp	372	4.30	0.00	1	702	50
20	On Ramp	3924	5.49	0.00	2	900	50
22	Off Ramp	1446	0.00	0.00	1	705	50
24	On Ramp	948	2.19	0.00	1	520	50
26	Off Ramp	707	2.56	0.00	1	272	50
30	On Ramp	689	2.02	0.00	1	1000	50
32	On Ramp	772	2.30	0.00	1	745	50
34	Off Ramp	849	2.13	0.00	1	203	50

26	-	Opa Locka Blvd OFR	Off Ramp	530	Level	8050	9.74	0.00	4	70
27	Opa Locka Blvd OFR	NW135 Street ONR	Basic Segment	2286	Level	7343	10.44	0.00	4	70
28	NW135 Street ONR	NW125 Street OFR	Weaving	2235	Level	7977	9.75	0.00	5	70
29	NW 125 Street OFR	NW125 Street OFR	Basic Segment	1570	Level	6957	10.98	0.00	4	70
30	-	NW 125 Street ONR	On Ramp	1500	Level	7646	10.17	0.00	4	70
31	NW 125 Street ONR	NW 119 Street ONR	Basic Segment	475	Level	7646	10.17	0.00	4	70
32	-	NW 119 Street ONR	On Ramp	1500	Level	8418	9.45	0.00	4	70
33	NW 119 Street ONR	NW103 Street OFR	Basic Segment	190	Level	8418	9.45	0.00	4	70
34	-	NW103 Street OFR	Off Ramp	1500	Level	8418	9.45	0.00	4	70
35	NW103 Street OFR	NW103 Street ONR	Basic Segment	1490	Level	7569	10.27	0.00	4	70
36	NW 103 Street ONR	NW 95 Street OFR	Weaving	1637	Level	8397	9.45	0.00	5	70
37	NW 95 Street OFR	I-95 MAINLINE	Basic Segment	25	Level	7567	10.05	0.00	4	70

Weaving Segment Data										
Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp			
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
28	0.050	634	1.80	0.00	1	50	1020	1.36	0.00	1	50
36	0.050	828	1.90	0.00	1	50	830	3.94	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
28	OneSide	2235	2	1	1	0
36	OneSide	1637	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	V (v h
1	Broward County Line	Ives Dairy Road OFR	Basic Segment	7963	6960	7200	6990	1.14	1.00	0	53.6	44.6	43.3	0.03	0.02	0.0	0.0	49.0	42.8	0.8	
2	-	Ives Dairy Road OFR	Off Ramp	7963	6960	7200	6990	1.14	1.00	0	59.3	40.3	39.1	0.29	0.24	0.0	0.0	565.6	494.3	8.3	
3	Ives Dairy Road OFR	Ives Dairy Road ONR	Basic Segment	5738	5040	9600	9229	0.62	0.55	0	69.9	18.8	18.0	0.75	0.75	0.0	0.0	1249.8	1097.7	15.7	
4	-	Ives Dairy Road ONR	On Ramp	7079	6360	7200	6967	1.02	0.91	0	53.2	40.9	39.6	0.32	0.24	0.1	0.1	502.8	451.7	8.5	
5	Ives Dairy Road ONR	Managed Lane Ingress	Basic Segment	7079	6360	7200	6967	1.02	0.91	0	58.6	37.4	36.2	0.41	0.34	0.1	0.1	711.3	639.0	10.9	
6	-	Managed Lane Ingress	Off Ramp	7079	6360	7200	6967	1.02	0.91	0	59.6	36.8	35.6	0.29	0.24	0.0	0.0	502.8	451.7	7.6	
7	Managed Lane Ingress	Miami Gardens Dr	Basic Segment	5345	4800	7200	6895	0.78	0.70	0	67.4	24.8	23.7	0.20	0.19	0.0	0.0	301.9	271.1	4.0	
8	-	Miami Gardens Dr OFR	Off Ramp	5345	4800	7200	6895	0.78	0.70	0	61.0	27.4	26.2	0.28	0.24	0.0	0.0	379.6	340.9	5.6	
9	Miami Gardens Dr OFR	Miami Gardens Dr ONR	Basic Segment	4081	3660	7200	6822	0.60	0.54	0	68.7	18.8	17.8	0.14	0.14	0.0	0.0	164.2	147.3	2.1	
10	-	Miami Gardens Dr ONR	On Ramp	4714	4320	7200	6861	0.69	0.63	0	62.9	23.9	22.7	0.18	0.16	0.0	0.0	223.2	204.5	3.3	
11	Miami Gardens Dr ONR	Managed Lane Egress	Basic Segment	4714	4320	7200	6861	0.69	0.63	0	68.0	22.2	21.2	0.10	0.09	0.0	0.0	129.2	118.4	1.7	
12	-	Managed Lane Egress	On Ramp	4980	4560	7200	6859	0.73	0.66	0	61.1	26.0	24.8	0.28	0.24	0.0	0.0	353.7	323.9	5.3	
13	Managed Lane Egress	Turnpike SR 826 OFR	Basic Segment	4980	4560	9600	9145	0.54	0.50	0	69.6	17.2	16.4	0.37	0.37	0.0	0.0	540.2	494.6	7.1	
14	-	FL Turnpk/SR 826 OFR	Off Ramp	4980	4560	9600	9145	0.54	0.50	0	63.3	18.9	18.0	0.27	0.24	0.0	0.0	353.7	323.9	5.1	
15	FL Turnpk/SR 826 OFR	SR 7/US-441 ONR	Basic Segment	3219	2940	7200	6800	0.47	0.43	0	69.2	15.0	14.2	0.20	0.20	0.0	0.0	183.5	167.6	2.4	
16	-	SR 7/US-441 ONR	On Ramp	4252	4020	7200	6776	0.63	0.59	0	59.3	23.6	22.2	0.29	0.24	0.0	0.0	302.0	285.5	4.8	
17	SR 7/US-441 ONR	NW 167 Street ONR	Basic Segment	4252	4020	7200	6776	0.63	0.59	0	67.6	21.1	19.8	0.05	0.05	0.0	0.0	63.8	60.3	0.9	

18	-	NW 167 Street ONR	On Ramp	4624	4380	7200	6797	0.68	0.64	0	16.2	95.3	89.9	0.14	0.03	0.1	0.1	43.8	41.5	2.6	
19	NW 167 Street ONR	FL Trnpke/SR 826 ONR	Basic Segment	4624	4380	7200	6797	0.68	0.64	0	54.9	28.2	26.6	0.28	0.22	0.1	0.1	299.7	283.9	5.2	
20	-	FL Trnpke/SR 826 ONR	On Ramp	8548	6480	9600	9189	0.93	0.71	0	50.2	32.8	31.4	0.34	0.24	0.1	6.6	607.1	460.2	9.2	
21	FL Trnpke/SR 826 ONR	Managed LAne Ingress	Basic Segment	8548	6480	9600	9189	0.93	0.71	0	67.2	25.2	24.1	0.15	0.15	0.0	0.0	367.1	278.3	4.1	
22	-	Managed Lane Ingress	Off Ramp	8548	6480	9600	9189	0.93	0.71	0	63.2	26.8	25.6	0.27	0.24	0.0	0.0	607.1	460.2	7.3	
23	Managed Lane Ingress	NW151 Street ONR	Basic Segment	7102	5340	9600	9110	0.78	0.59	0	68.7	20.5	19.4	0.09	0.09	0.0	0.0	192.3	144.6	2.1	
24	-	NW 151 Street ONR	On Ramp	8050	6300	9600	9154	0.88	0.69	0	62.7	26.2	24.9	0.10	0.09	0.0	0.0	202.0	158.1	2.5	
25	NW 151 Street ONR	Opa Locka Blvd OFR	Ramp Overlap	8050	6300	9600	9154	0.88	0.69	0	62.7	26.2	24.9	0.18	0.16	0.0	0.0	369.7	289.3	4.6	
26	-	Opa Locka Blvd OFR	Off Ramp	8050	6300	9600	9154	0.88	0.69	0	65.2	25.3	24.2	0.09	0.09	0.0	0.0	202.0	158.1	2.4	
27	Opa Locka Blvd OFR	NW135 Street ONR	Basic Segment	7343	5760	9600	9124	0.80	0.63	0	68.8	22.0	20.9	0.38	0.37	0.0	0.0	794.8	623.5	9.1	
28	NW135 Street ONR	NW125 Street OFR	Weaving	7977	6420	11154	10636	0.75	0.60	0	52.3	27.7	26.4	0.49	0.36	0.1	0.1	844.2	679.4	13.0	
29	NW 125 Street OFR	NW125 Street OFR	Basic Segment	6957	5580	9600	9100	0.76	0.61	0	69.1	21.3	20.2	0.26	0.25	0.0	0.0	517.2	414.8	6.0	
30	-	NW 125 Street ONR	On Ramp	7646	6240	9600	9135	0.84	0.68	0	63.6	25.6	24.4	0.27	0.24	0.0	0.0	543.0	443.2	7.0	
31	NW 125 Street ONR	NW 119 Street ONR	Basic Segment	7646	6240	9600	9135	0.84	0.68	0	67.8	24.2	23.0	0.08	0.08	0.0	0.0	172.0	140.3	2.1	
32	-	NW 119 Street ONR	On Ramp	8418	7020	9600	9167	0.92	0.77	0	61.4	29.8	28.4	0.28	0.24	0.0	0.0	597.9	498.6	8.1	
33	NW 119 Street ONR	NW103 Street OFR	Basic Segment	8418	7020	9600	9167	0.92	0.77	0	65.3	28.2	26.9	0.03	0.03	0.0	0.0	75.7	63.2	1.0	
34	-	NW103 Street OFR	Off Ramp	8418	7020	9600	9167	0.92	0.77	0	64.6	28.4	27.2	0.26	0.24	0.0	0.0	597.9	498.6	7.7	
35	NW103 Street OFR	NW103 Street ONR	Basic Segment	7569	6300	9600	9131	0.83	0.69	0	67.6	24.5	23.3	0.25	0.24	0.0	0.0	534.0	444.5	6.6	
36	NW 103 Street ONR	NW 95 Street OFR	Weaving	8397	7140	10963	10469	0.80	0.68	0	51.2	32.0	30.5	0.36	0.27	0.1	0.1	650.8	553.4	10.8	
37	NW 95 Street OFR	I-95 MAINLINE	Basic Segment	7567	6480	9600	9141	0.83	0.71	0	65.1	26.1	24.9	0.00	0.00	0.0	0.0	9.0	7.7	0.1	

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
Broward County Line-Ives Dairy Road OFR	Basic	1.14	53.6	44.6	43.3	0.03	0.02	0,049.0	0,042.8	0.80	0.19
--Ives Dairy Road OFR	OffRamp	1.14	59.3	40.3	39.1	0.29	0.24	0,565.6	0,494.3	8.34	1.28
Ives Dairy Road OFR-Ives Dairy Road ONR	Basic	0.62	69.9	18.8	18.0	0.75	0.75	1,249.8	1,097.7	15.71	0.03
--Ives Dairy Road ONR	OnRamp	1.02	53.2	40.9	39.6	0.32	0.24	0,502.8	0,451.7	8.49	2.03
Ives Dairy Road ONR-Managed Lane Ingress	Basic	1.02	58.6	37.4	36.2	0.41	0.34	0,711.3	0,639.0	10.90	1.77
--Managed Lane Ingress	OffRamp	1.02	59.6	36.8	35.6	0.29	0.24	0,502.8	0,451.7	7.58	1.13
Managed Lane Ingress-Miami Gardens Dr	Basic	0.78	67.4	24.8	23.7	0.20	0.19	0,301.9	0,271.1	4.02	0.15
--Miami Gardens Dr OFR	OffRamp	0.78	61.0	27.4	26.2	0.28	0.24	0,379.6	0,340.9	5.59	0.72
Miami Gardens Dr OFR-Miami Gardens Dr ONR	Basic	0.60	68.7	18.8	17.8	0.14	0.14	0,164.2	0,147.3	2.15	0.04

--Miami Gardens Dr ONR	OnRamp	0.69	62.9	23.9	22.7	0.18	0.16	0,223.2	0,204.5	3.25	0.33
Miami Gardens Dr ONR-Managed Lane Egress	Basic	0.69	68.0	22.2	21.2	0.10	0.09	0,129.2	0,118.4	1.74	0.05
-- Managed Lane Egress	OnRamp	0.73	61.1	26.0	24.8	0.28	0.24	0,353.7	0,323.9	5.30	0.67
Managed Lane Egress-Turnpike SR 826 OFR	Basic	0.54	69.6	17.2	16.4	0.37	0.37	0,540.2	0,494.6	7.11	0.04
--FL Turnpk/SR 826 OFR	OffRamp	0.54	63.3	18.9	18.0	0.27	0.24	0,353.7	0,323.9	5.12	0.49
FL Turnpk/SR 826 OFR-SR 7/US-441 ONR	Basic	0.47	69.2	15.0	14.2	0.20	0.20	0,183.5	0,167.6	2.42	0.03
--SR 7/US-441 ONR	OnRamp	0.63	59.3	23.6	22.2	0.29	0.24	0,302.0	0,285.5	4.81	0.73
SR 7/US-441 ONR-NW 167 Street ONR	Basic	0.63	67.6	21.1	19.8	0.05	0.05	0,063.8	0,060.3	0.89	0.03
--NW 167 Street ONR	OnRamp	0.68	16.2	95.3	89.9	0.14	0.03	0,043.8	0,041.5	2.57	1.97
NW 167 Street ONR-FL Trnpke/SR 826 ONR	Basic	0.68	54.9	28.2	26.6	0.28	0.22	0,299.7	0,283.9	5.17	1.12
--FL Trnpke/SR 826 ONR	OnRamp	0.93	50.2	32.8	31.4	0.34	0.24	0,607.1	0,460.2	9.16	2.58
FL Trnpke/SR 826 ONR-Managed LAne Ingress	Basic	0.93	67.2	25.2	24.1	0.15	0.15	0,367.1	0,278.3	4.14	0.17
-- Managed Lane Ingress	OffRamp	0.93	63.2	26.8	25.6	0.27	0.24	0,607.1	0,460.2	7.29	0.71
Managed Lane Ingress-NW151 Street ONR	Basic	0.78	68.7	20.5	19.4	0.09	0.09	0,192.3	0,144.6	2.10	0.04
--NW 151 Street ONR	OnRamp	0.88	62.7	26.2	24.9	0.10	0.09	0,202.0	0,158.1	2.52	0.26
NW 151 Street ONR-Opa Locka Blvd OFR	RampOverlap	0.88	62.7	26.2	24.9	0.18	0.16	0,369.7	0,289.3	4.61	0.48
--Opa Locka Blvd OFR	OffRamp	0.88	65.2	25.3	24.2	0.09	0.09	0,202.0	0,158.1	2.43	0.17
Opa Locka Blvd OFR-NW135 Street ONR	Basic	0.80	68.8	22.0	20.9	0.38	0.37	0,794.8	0,623.5	9.06	0.15
NW135 Street ONR-NW125 Street OFR	Weaving	0.75	52.3	27.7	26.4	0.49	0.36	0,844.2	0,679.4	12.99	3.28
NW 125 Street OFR-NW125 Street OFR	Basic	0.76	69.1	21.3	20.2	0.26	0.25	0,517.2	0,414.8	6.00	0.07
--NW 125 Street ONR	OnRamp	0.84	63.6	25.6	24.4	0.27	0.24	0,543.0	0,443.2	6.97	0.64
NW 125 Street ONR-NW 119 Street ONR	Basic	0.84	67.8	24.2	23.0	0.08	0.08	0,172.0	0,140.3	2.07	0.07
--NW 119 Street ONR	OnRamp	0.92	61.4	29.8	28.4	0.28	0.24	0,597.9	0,498.6	8.12	1.00
NW 119 Street ONR-NW103 Street OFR	Basic	0.92	65.3	28.2	26.9	0.03	0.03	0,075.7	0,063.2	0.97	0.07
--NW103 Street OFR	OffRamp	0.92	64.6	28.4	27.2	0.26	0.24	0,597.9	0,498.6	7.72	0.59
NW103											

Street OFR-NW103 Street ONR	Basic	0.83	67.6	24.5	23.3	0.25	0.24	0,534.0	0,444.5	6.58	0.23
NW 103 Street ONR-NW 95 Street OFR	Weaving	0.80	51.2	32.0	30.5	0.36	0.27	0,650.8	0,553.4	10.80	2.90
NW 95 Street OFR-I-95 MAINLINE	Basic	0.83	65.1	26.1	24.9	0.00	0.00	0,009.0	0,007.7	0.12	0.01
Freeway			61.1	26.1	25.0	8.75	7.67	14,803.5	12,556.8	0,205.6	0,026.2

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic
1	E	E	C	E	E	E	C	C	C	C	C	C	B	B	B

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	On Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Ramp Overlap	Off Ramp	Basic	Weaving	Basic	On Ramp
1	C	C	E	D	D	C	C	C	C	D	C	C	C	C	C

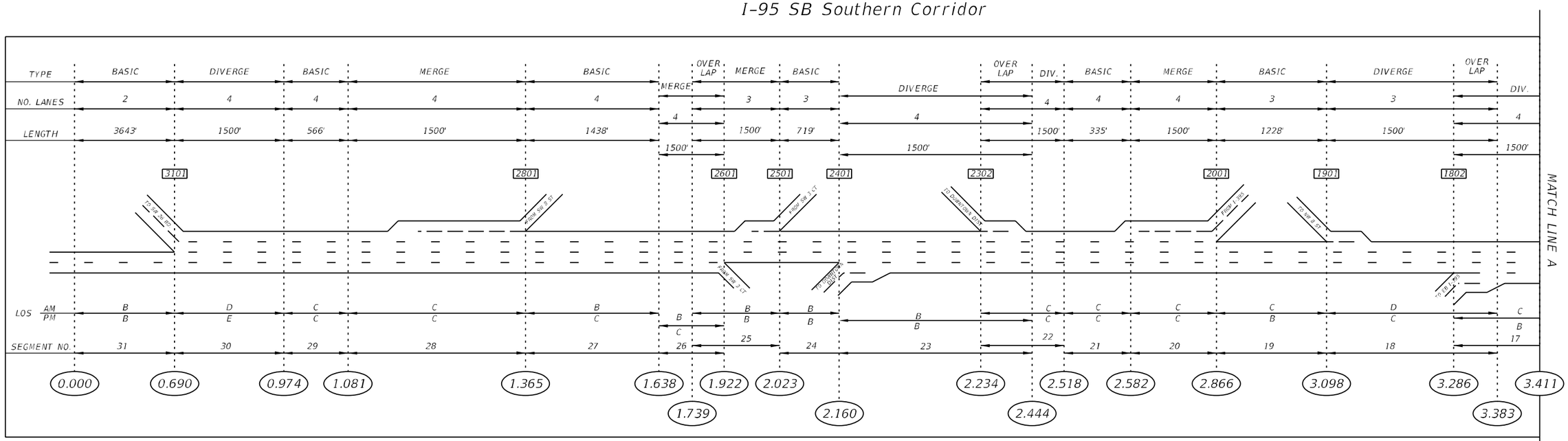
	Density-Based LOS by Segment						
Segment	31	32	33	34	35	36	37
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	Weaving	Basic
1	C	D	D	D	C	D	D

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	F	F	.	F	F	F	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	Demand-Based LOS by Segment						
Time Step	31	32	33	34	35	36	37
1	.	.	.	.	.	.	.

I-95 SB Southern Corridor

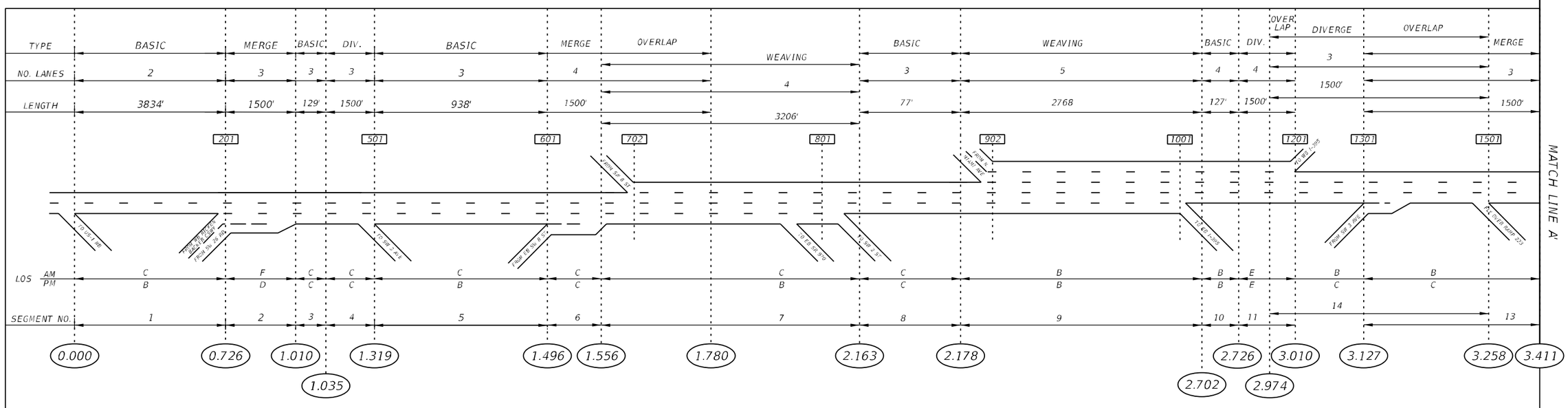


LEGEND :

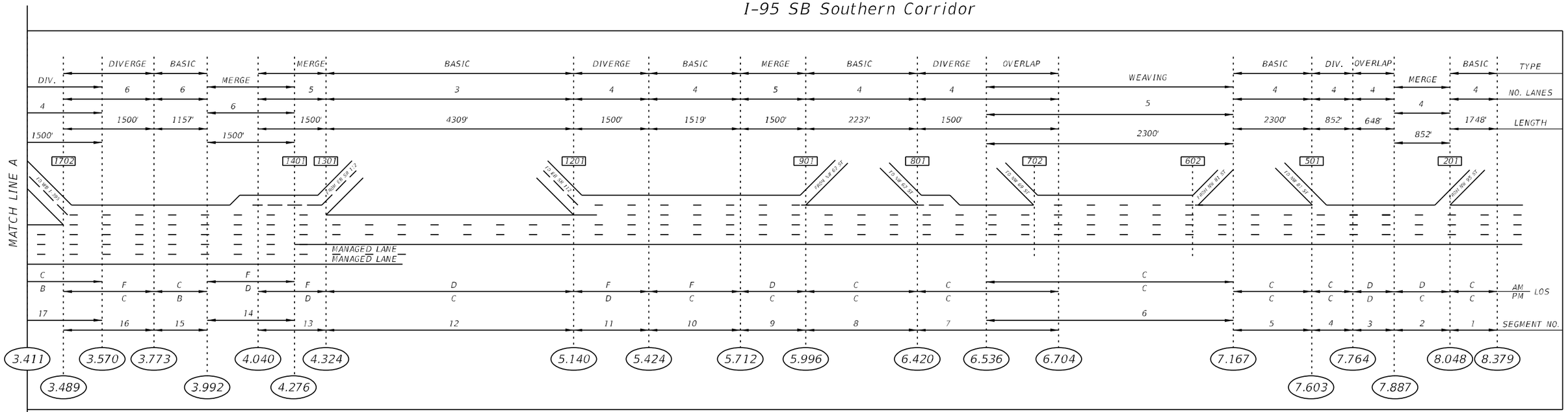
2121 NODE

12.215 MILE MARKER

I-95 NB Southern Corridor



I-95 SB Southern Corridor



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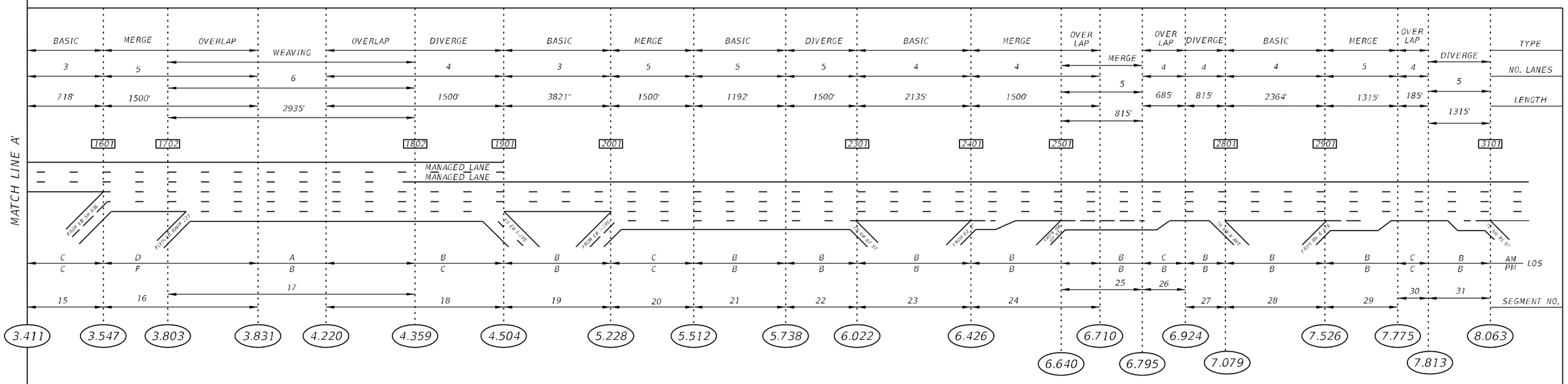

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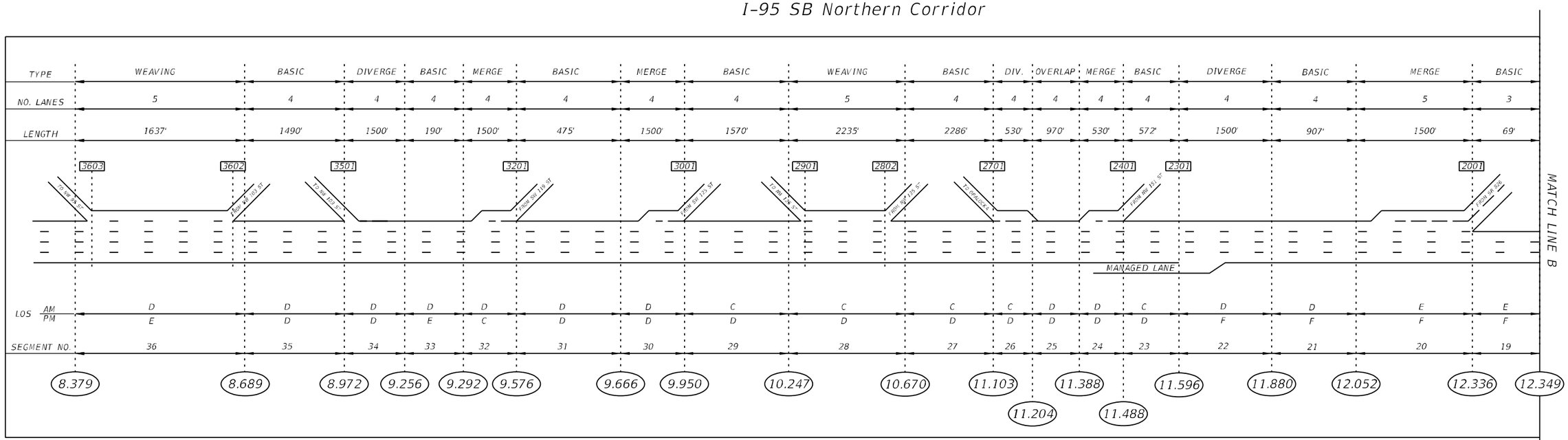
2121 NODE

12.215 MILE MARKER

I-95 SB Northern Corridor



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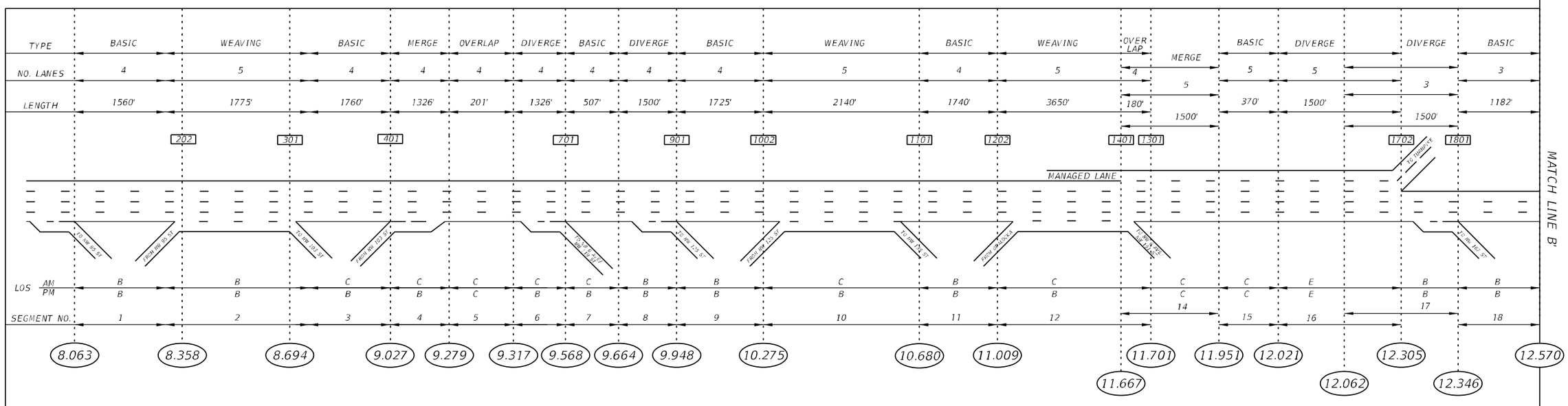
12.215 MILE MARKER

I-95 NB Northern Corridor



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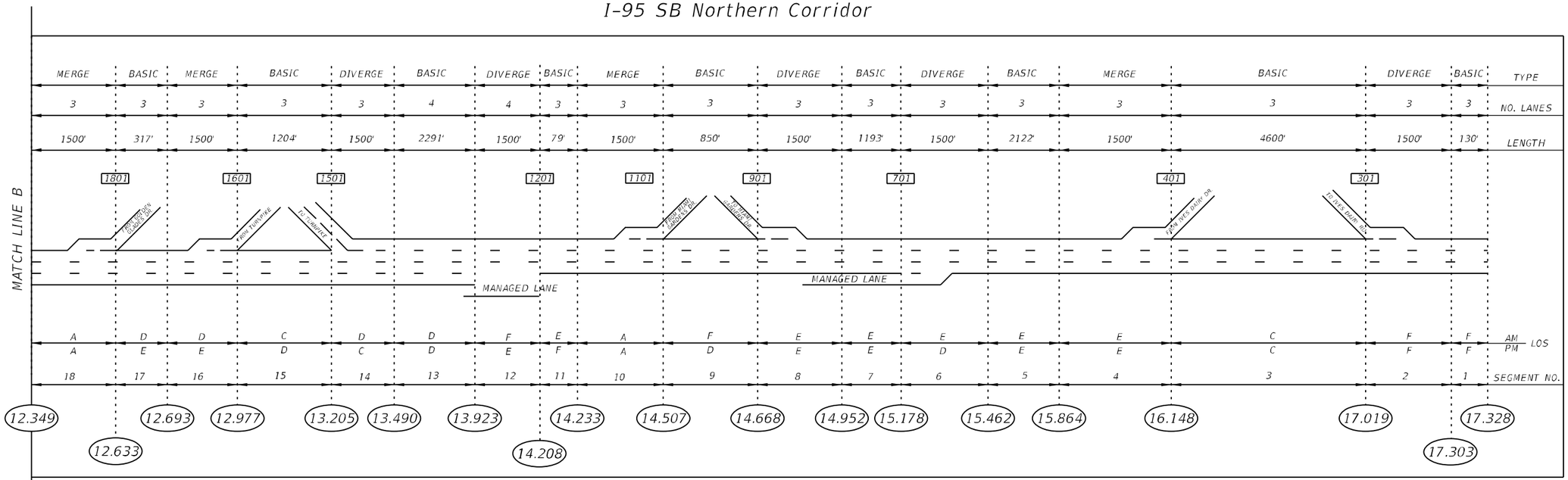

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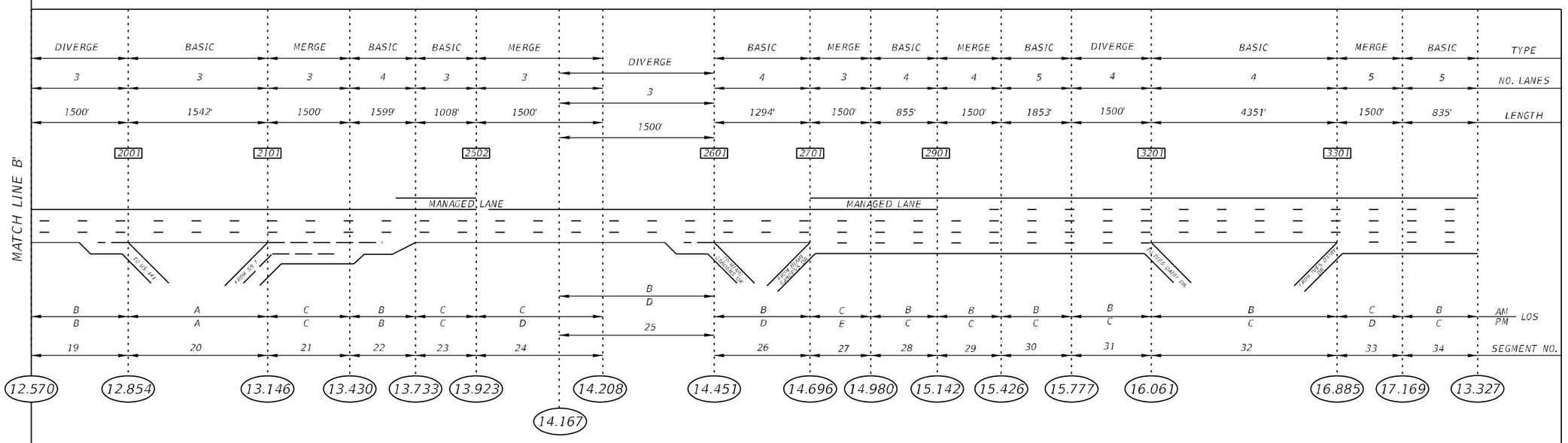
2121 NODE

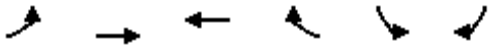
12.215 MILE MARKER

I-95 NB Northern Corridor



Appendix B
Synchro Intersection Analyses

Part 1
AM Peak Period



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	3922	2897	74	813	230
Future Volume (veh/h)	99	3922	2897	74	813	230
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	103	4085	3018	0	847	240
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	151	4251	3915	0	229	204
Arrive On Green	0.04	0.83	0.76	0.00	0.13	0.13
Sat Flow, veh/h	1792	5305	5474	0	1792	1599
Grp Volume(v), veh/h	103	4085	3018	0	847	240
Grp Sat Flow(s),veh/h/ln	1792	1712	1712	0	1792	1599
Q Serve(g_s), s	2.7	120.5	61.0	0.0	23.0	23.0
Cycle Q Clear(g_c), s	2.7	120.5	61.0	0.0	23.0	23.0
Prop In Lane	1.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	151	4251	3915	0	229	204
V/C Ratio(X)	0.68	0.96	0.77	0.00	3.70	1.17
Avail Cap(c_a), veh/h	232	4251	3915	0	229	204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	13.0	12.3	0.0	78.5	78.5
Incr Delay (d2), s/veh	2.0	7.3	1.5	0.0	1225.6	118.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.8	71.0	37.9	0.0	160.8	46.4
LnGrp Delay(d),s/veh	49.0	20.4	13.8	0.0	1304.1	196.5
LnGrp LOS	D	C	B		F	F
Approach Vol, veh/h		4188	3018		1087	
Approach Delay, s/veh		21.1	13.8		1059.6	
Approach LOS		C	B		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		153.0		27.0	11.8	141.2		
Change Period (Y+Rc), s		6.8		6.4	6.8	6.8		
Max Green Setting (Gmax), s		146.2		20.6	13.2	126.2		
Max Q Clear Time (g_c+I1), s		122.5		25.0	4.7	63.0		
Green Ext Time (p_c), s		23.5		0.0	0.1	49.5		

Intersection Summary	
HCM 2010 Ctrl Delay	154.6
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
203: S Miami Ave & SW 26th Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1316	502	118	134	73	509	302	2	58	235	39
Future Volume (veh/h)	45	1316	502	118	134	73	509	302	2	58	235	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	47	1385	0	124	141	0	536	318	0	61	247	0
Adj No. of Lanes	1	3	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	1229	371	175	525	446	695	1884	0	596	1687	0
Arrive On Green	0.02	0.24	0.00	0.06	0.28	0.00	0.11	0.71	0.00	0.04	0.63	0.00
Sat Flow, veh/h	1774	5085	1583	1774	1863	1583	1774	3632	0	1774	3632	0
Grp Volume(v), veh/h	47	1385	0	124	141	0	536	318	0	61	247	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1863	1583	1774	1770	0	1774	1770	0
Q Serve(g_s), s	2.4	29.0	0.0	6.2	7.1	0.0	10.0	3.6	0.0	2.2	3.4	0.0
Cycle Q Clear(g_c), s	2.4	29.0	0.0	6.2	7.1	0.0	10.0	3.6	0.0	2.2	3.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	361	1229	371	175	525	446	695	1884	0	596	1687	0
V/C Ratio(X)	0.13	1.13	0.00	0.71	0.27	0.00	0.77	0.17	0.00	0.10	0.15	0.00
Avail Cap(c_a), veh/h	613	1229	371	341	525	446	695	1884	0	694	1687	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.6	45.5	0.0	34.2	33.5	0.0	21.2	8.7	0.0	16.1	12.1	0.0
Incr Delay (d2), s/veh	0.2	68.1	0.0	4.3	0.2	0.0	5.3	0.2	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	38.3	0.0	5.8	6.5	0.0	16.3	3.2	0.0	1.9	3.1	0.0
LnGrp Delay(d),s/veh	34.8	113.6	0.0	38.5	33.6	0.0	26.5	8.9	0.0	16.2	12.3	0.0
LnGrp LOS	C	F		D	C		C	A		B	B	
Approach Vol, veh/h		1432			265			854			308	
Approach Delay, s/veh		111.0			35.9			19.9			13.1	
Approach LOS		F			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	67.9	11.8	33.0	14.0	61.2	7.0	37.8
Change Period (Y+Rc), s	3.0	5.0	3.5	* 4.9	3.0	5.0	3.0	* 4.9
Max Green Setting (Gmax), s	11.0	45.0	19.5	* 28	11.0	45.0	21.0	* 27
Max Q Clear Time (g_c+I1), s	4.2	5.6	8.2	31.0	12.0	5.4	4.4	9.1
Green Ext Time (p_c), s	0.1	1.8	0.2	0.0	0.0	1.4	0.1	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	66.3
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
204: Brickell Ave & SW 26th Rd/Rickenbacker Causeway

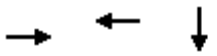
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	1033	30	0	249	472	0	1259	608	201	926	92
Future Volume (veh/h)	286	1033	30	0	249	472	0	1259	608	201	926	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1863	0	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	314	1135	0	0	274	0	0	1384	668	221	1018	0
Adj No. of Lanes	1	3	1	0	2	1	0	2	1	2	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	0	2	2	0	2	2	2	2	2
Cap, veh/h	388	1599	498	0	435	157	0	1852	794	441	2190	0
Arrive On Green	0.16	0.31	0.00	0.00	0.12	0.00	0.00	0.70	0.67	0.08	0.82	0.00
Sat Flow, veh/h	1774	5085	1583	0	3632	1583	0	3632	1583	3442	3632	0
Grp Volume(v), veh/h	314	1135	0	0	274	0	0	1384	668	221	1018	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	0	1770	1583	0	1770	1583	1721	1770	0
Q Serve(g_s), s	18.3	23.6	0.0	0.0	8.8	0.0	0.0	29.7	38.4	3.3	9.9	0.0
Cycle Q Clear(g_c), s	18.3	23.6	0.0	0.0	8.8	0.0	0.0	29.7	38.4	3.3	9.9	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	388	1599	498	0	435	157	0	1852	794	441	2190	0
V/C Ratio(X)	0.81	0.71	0.00	0.00	0.63	0.00	0.00	0.75	0.84	0.50	0.46	0.00
Avail Cap(c_a), veh/h	388	2076	647	0	767	306	0	1852	794	542	2190	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	0.70	0.70	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.3	36.3	0.0	0.0	50.0	0.0	0.0	13.2	16.3	19.1	4.9	0.0
Incr Delay (d2), s/veh	8.2	0.5	0.0	0.0	1.1	0.0	0.0	2.8	10.5	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.1	15.7	0.0	0.0	7.8	0.0	0.0	21.2	25.7	3.5	8.6	0.0
LnGrp Delay(d),s/veh	45.5	36.8	0.0	0.0	51.2	0.0	0.0	16.0	26.8	19.4	5.6	0.0
LnGrp LOS	D	D			D			B	C	B	A	
Approach Vol, veh/h		1449			274			2052			1239	
Approach Delay, s/veh		38.7			51.2			19.5			8.1	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	11.5	66.8		41.7		78.3	23.0	18.7
Change Period (Y+Rc), s	6.0	6.6		* 6.8		6.6	6.0	* 6.8
Max Green Setting (Gmax), s	9.0	45.4		* 46		60.4	17.0	* 23
Max Q Clear Time (g_c+I1), s	5.3	40.4		25.6		11.9	20.3	10.8
Green Ext Time (p_c), s	0.1	2.6		7.1		3.1	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



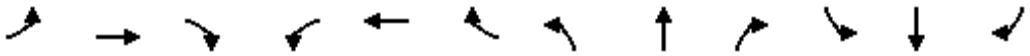
Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	779	379	2559
v/c Ratio	0.98	0.49	0.98
Control Delay	61.9	16.0	41.1
Queue Delay	39.7	0.7	41.7
Total Delay	101.5	16.7	82.7
Queue Length 50th (ft)	549	46	676
Queue Length 95th (ft)	#802	62	#825
Internal Link Dist (ft)	411	125	410
Turn Bay Length (ft)			
Base Capacity (vph)	798	772	2613
Starvation Cap Reductn	0	154	0
Spillback Cap Reductn	104	0	473
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.12	0.61	1.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
205: SB Off-Ramp & SW 25th Rd

2045 No Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	683	65	8	356	0	0	0	0	362	1727	368
Future Volume (vph)	0	683	65	8	356	0	0	0	0	362	1727	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0						4.0	
Lane Util. Factor		*0.53			0.95						0.91	
Frt		0.99			1.00						0.98	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		1949			3535						4935	
Flt Permitted		1.00			0.75						0.99	
Satd. Flow (perm)		1949			2647						4935	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	711	68	8	371	0	0	0	0	377	1799	383
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	776	0	0	379	0	0	0	0	0	2538	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		48.5			34.5						62.0	
Effective Green, g (s)		49.0			35.0						63.0	
Actuated g/C Ratio		0.41			0.29						0.52	
Clearance Time (s)		4.5			4.5						5.0	
Vehicle Extension (s)		2.5			2.5						1.0	
Lane Grp Cap (vph)		795			772						2590	
v/s Ratio Prot		c0.40										
v/s Ratio Perm					0.14						0.51	
v/c Ratio		0.98			0.49						0.98	
Uniform Delay, d1		34.9			35.1						27.9	
Progression Factor		1.00			0.39						1.00	
Incremental Delay, d2		25.9			0.3						13.6	
Delay (s)		60.8			14.1						41.5	
Level of Service		E			B						D	
Approach Delay (s)		60.8			14.1			0.0			41.5	
Approach LOS		E			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	530	636	297	1059	102	1081
v/c Ratio	1.36	0.82	0.54	1.47	0.11	1.09
Control Delay	195.3	25.3	40.0	244.3	14.7	81.6
Queue Delay	2.4	51.9	0.0	0.0	0.0	0.0
Total Delay	197.7	77.2	40.0	244.3	14.7	81.6
Queue Length 50th (ft)	~441	306	193	~930	35	~937
Queue Length 95th (ft)	m#508	m343	284	#1189	m56	m#1144
Internal Link Dist (ft)		125	258			245
Turn Bay Length (ft)						
Base Capacity (vph)	390	775	554	718	947	993
Starvation Cap Reductn	78	287	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.70	1.30	0.54	1.47	0.11	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
206: NB On-Ramp & SW 25th Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	579	0	0	270	964	93	942	42	0	0	0
Future Volume (vph)	482	579	0	0	270	964	93	942	42	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			1.00	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1805	1900			1900	1615	1805	1888				
Flt Permitted	0.39	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	739	1900			1900	1615	1805	1888				
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	530	636	0	0	297	1059	102	1035	46	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	248	0	1	0	0	0	0
Lane Group Flow (vph)	530	636	0	0	297	811	102	1080	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Perm	Split	NA				
Protected Phases	3	8			4		6	6				
Permitted Phases	8					4						
Actuated Green, G (s)	49.5	48.5			34.5	34.5	62.0	62.0				
Effective Green, g (s)	49.0	49.0			35.0	35.0	63.0	63.0				
Actuated g/C Ratio	0.41	0.41			0.29	0.29	0.52	0.52				
Clearance Time (s)	3.5	4.5			4.5	4.5	5.0	5.0				
Vehicle Extension (s)	2.0	2.5			2.5	2.5	1.0	1.0				
Lane Grp Cap (vph)	390	775			554	471	947	991				
v/s Ratio Prot	c0.11	0.33			0.16		0.06	c0.57				
v/s Ratio Perm	0.44					c0.50						
v/c Ratio	1.36	0.82			0.54	1.72	0.11	1.09				
Uniform Delay, d1	40.0	31.6			35.7	42.5	14.3	28.5				
Progression Factor	0.71	0.65			1.00	1.00	0.99	0.88				
Incremental Delay, d2	168.2	2.8			0.8	333.8	0.2	55.9				
Delay (s)	196.6	23.4			36.5	376.3	14.5	81.1				
Level of Service	F	C			D	F	B	F				
Approach Delay (s)		102.1			301.9			75.4			0.0	
Approach LOS		F			F			E			A	

Intersection Summary			
HCM 2000 Control Delay	166.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	148.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	1395	387	0	0	0	0	245	663	0	0	0
Future Volume (veh/h)	229	1395	387	0	0	0	0	245	663	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	239	1453	403				0	255	691			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	312	1684	465				0	156	422			
Arrive On Green	0.68	0.68	0.65				0.00	0.35	0.33			
Sat Flow, veh/h	536	3313	916				0	445	1205			
Grp Volume(v), veh/h	754	667	675				0	0	946			
Grp Sat Flow(s),veh/h/ln	1689	1543	1533				0	0	1650			
Q Serve(g_s), s	42.7	39.5	41.8				0.0	0.0	42.0			
Cycle Q Clear(g_c), s	42.7	39.5	41.8				0.0	0.0	42.0			
Prop In Lane	0.32		0.60				0.00		0.73			
Lane Grp Cap(c), veh/h	898	784	779				0	0	578			
V/C Ratio(X)	0.84	0.85	0.87				0.00	0.00	1.64			
Avail Cap(c_a), veh/h	1025	900	895				0	0	578			
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	16.5	16.0	17.0				0.0	0.0	39.7			
Incr Delay (d2), s/veh	9.3	11.2	12.4				0.0	0.0	294.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	29.5	26.1	27.4				0.0	0.0	119.5			
LnGrp Delay(d),s/veh	25.7	27.1	29.4				0.0	0.0	334.6			
LnGrp LOS	C	C	C						F			
Approach Vol, veh/h		2095						946				
Approach Delay, s/veh		27.4						334.6				
Approach LOS		C						F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				46.0		65.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				40.0		68.0		
Max Q Clear Time (g_c+I1), s				44.0		44.7		
Green Ext Time (p_c), s				0.0		14.3		

Intersection Summary	
HCM 2010 Ctrl Delay	122.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2598	65	0	0	0	0	0	0	2383	483	0
Future Volume (veh/h)	0	2598	65	0	0	0	0	0	0	2383	483	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1900							1845	1845	0
Adj Flow Rate, veh/h	0	2678	67							2457	498	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.97	0.97	0.97							0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	2447	61							2764	994	0
Arrive On Green	0.00	0.52	0.49							0.54	0.54	0.00
Sat Flow, veh/h	0	6532	155							4796	1845	0
Grp Volume(v), veh/h	0	1959	786							2457	498	0
Grp Sat Flow(s),veh/h/ln	0	1513	1817							1599	1845	0
Q Serve(g_s), s	0.0	47.4	47.4							58.1	20.5	0.0
Cycle Q Clear(g_c), s	0.0	47.4	47.4							58.1	20.5	0.0
Prop In Lane	0.00		0.09							1.00		0.00
Lane Grp Cap(c), veh/h	0	1791	717							2764	994	0
V/C Ratio(X)	0.00	1.09	1.10							0.89	0.50	0.00
Avail Cap(c_a), veh/h	0	1791	717							2778	999	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	28.5	28.7							26.2	17.5	0.0
Incr Delay (d2), s/veh	0.0	48.2	56.3							0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	49.4	62.2							28.1	12.0	0.0
LnGrp Delay(d),s/veh	0.0	76.7	84.9							26.5	17.5	0.0
LnGrp LOS		F	F							C	B	
Approach Vol, veh/h		2745									2955	
Approach Delay, s/veh		79.1									25.0	
Approach LOS		E									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		51.4		68.6				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 44		63.0				
Max Q Clear Time (g_c+I1), s		49.4		60.1				
Green Ext Time (p_c), s		0.0		2.5				

Intersection Summary	
HCM 2010 Ctrl Delay	51.1
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	429	2949	233	0	0	0	0	526	284	38	868	0
Future Volume (veh/h)	429	2949	233	0	0	0	0	526	284	38	868	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	447	3072	0				0	548	296	40	904	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	0				0	3	3	3	3	0
Cap, veh/h	448	3339	0				0	323	274	60	323	0
Arrive On Green	0.97	0.97	0.00				0.00	0.17	0.17	0.23	0.23	0.00
Sat Flow, veh/h	612	4725	0				0	1845	1568	643	1845	0
Grp Volume(v), veh/h	1325	2194	0				0	548	296	40	904	0
Grp Sat Flow(s),veh/h/ln	1814	1679	0				0	1845	1568	643	1845	0
Q Serve(g_s), s	79.6	15.6	0.0				0.0	21.0	21.0	0.0	21.0	0.0
Cycle Q Clear(g_c), s	79.6	15.6	0.0				0.0	21.0	21.0	21.0	21.0	0.0
Prop In Lane	0.34		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1328	2458	0				0	323	274	60	323	0
V/C Ratio(X)	1.00	0.89	0.00				0.00	1.70	1.08	0.67	2.80	0.00
Avail Cap(c_a), veh/h	1376	2546	0				0	323	274	60	323	0
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	1.5	0.6	0.0				0.0	49.5	49.5	56.5	46.0	0.0
Incr Delay (d2), s/veh	24.1	5.5	0.0				0.0	326.9	76.9	22.9	818.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	41.8	10.5	0.0				0.0	72.0	26.9	3.1	151.3	0.0
LnGrp Delay(d),s/veh	25.5	6.1	0.0				0.0	376.4	126.4	79.4	864.8	0.0
LnGrp LOS	C	A						F	F	E	F	
Approach Vol, veh/h		3519						844			944	
Approach Delay, s/veh		13.4						288.7			831.5	
Approach LOS		B						F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				25.0		93.4		25.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				19.0		89.0		19.0
Max Q Clear Time (g_c+I1), s				23.0		81.6		23.0
Green Ext Time (p_c), s				0.0		7.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	202.7
HCM 2010 LOS	F

Lane Group	EBT	EBR	NBT	SBT
Lane Group Flow (vph)	2848	266	837	995
v/c Ratio	1.03	0.29	0.55	3.32dl
Control Delay	42.8	4.4	36.1	151.2
Queue Delay	27.8	0.0	0.2	4.3
Total Delay	70.6	4.4	36.2	155.5
Queue Length 50th (ft)	~892	38	196	~514
Queue Length 95th (ft)	m#893	m38	241	#651
Internal Link Dist (ft)	471		427	248
Turn Bay Length (ft)		155		
Base Capacity (vph)	2756	917	1512	808
Starvation Cap Reductn	497	0	0	360
Spillback Cap Reductn	114	0	137	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.26	0.29	0.61	2.22

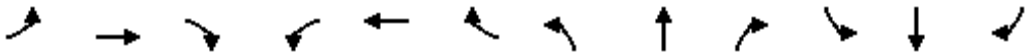
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	275	2288	239	0	0	0	0	612	141	595	301	0
Future Volume (vph)	275	2288	239	0	0	0	0	612	141	595	301	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0			4.0	
Lane Util. Factor		0.91	1.00					0.91			0.95	
Frt		1.00	0.85					0.97			1.00	
Flt Protected		0.99	1.00					1.00			0.97	
Satd. Flow (prot)		5009	1568					4894			3392	
Flt Permitted		0.99	1.00					1.00			0.56	
Satd. Flow (perm)		5009	1568					4894			1954	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	306	2542	266	0	0	0	0	680	157	661	334	0
RTOR Reduction (vph)	0	0	55	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	2848	211	0	0	0	0	834	0	0	995	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		63.7	63.7					34.7			43.7	
Effective Green, g (s)		66.0	66.0					37.0			46.0	
Actuated g/C Ratio		0.55	0.55					0.31			0.38	
Clearance Time (s)		6.3	6.3					6.3			6.3	
Vehicle Extension (s)		1.0	1.0					1.0			1.0	
Lane Grp Cap (vph)		2754	862					1508			836	
v/s Ratio Prot								0.17			c0.07	
v/s Ratio Perm		0.57	0.13								0.38	
v/c Ratio		1.03	0.24					0.55			3.32dl	
Uniform Delay, d1		27.0	14.0					34.6			37.0	
Progression Factor		0.86	0.55					1.00			1.28	
Incremental Delay, d2		19.0	0.0					1.5			94.6	
Delay (s)		42.4	7.8					36.1			141.9	
Level of Service		D	A					D			F	
Approach Delay (s)		39.4			0.0			36.1			141.9	
Approach LOS		D			A			D			F	

Intersection Summary			
HCM 2000 Control Delay	59.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	WBT	SBT	SWL	SWR
Lane Group Flow (vph)	342	763	569	1954	663
v/c Ratio	0.70	0.82	1.26	1.12	0.91
Control Delay	18.5	26.7	178.4	91.9	45.4
Queue Delay	0.7	0.4	0.0	0.9	0.0
Total Delay	19.3	27.1	178.4	92.8	45.4
Queue Length 50th (ft)	143	241	~291	~914	507
Queue Length 95th (ft)	m139	m200	#407	#1077	#816
Internal Link Dist (ft)		443	266	601	
Turn Bay Length (ft)					
Base Capacity (vph)	531	1024	450	1743	732
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	42	48	0	413	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.78	1.26	1.47	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	527	511	519	16	1767	693
Future Volume (vph)	527	511	519	16	1767	693
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	1.00		0.99	0.85
Flt Protected	0.95	0.99	1.00		0.95	1.00
Satd. Flow (prot)	1595	3310	3489		3395	1427
Flt Permitted	0.95	0.99	1.00		0.95	1.00
Satd. Flow (perm)	1595	3310	3489		3395	1427
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	561	544	552	17	1880	737
RTOR Reduction (vph)	76	76	0	0	0	0
Lane Group Flow (vph)	266	687	569	0	1954	663
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	28.4	28.4	12.3		58.6	58.6
Effective Green, g (s)	30.9	30.9	15.5		61.6	61.6
Actuated g/C Ratio	0.26	0.26	0.13		0.51	0.51
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	410	852	450		1742	732
v/s Ratio Prot			c0.16		c0.58	
v/s Ratio Perm	0.17	0.21				0.46
v/c Ratio	0.65	0.81	1.26		1.12	0.91
Uniform Delay, d1	39.7	41.8	52.2		29.2	26.6
Progression Factor	0.64	0.72	1.00		1.00	1.00
Incremental Delay, d2	0.7	0.8	135.8		63.0	14.7
Delay (s)	26.3	30.9	188.0		92.2	41.3
Level of Service	C	C	F		F	D
Approach Delay (s)		29.4	188.0		79.3	
Approach LOS		C	F		E	

Intersection Summary			
HCM 2000 Control Delay	80.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
307: SW 3rd Ave & SW 7th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	566	701	56	747	189	0	0	0	0
Future Volume (veh/h)	0	0	0	566	701	56	747	189	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1900	1881	1900	1881	1881	0			
Adj Flow Rate, veh/h				615	762	61	812	205	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				1	1	1	1	1	0			
Cap, veh/h				983	1942	155	568	533	0			
Arrive On Green				0.86	0.86	0.84	0.28	0.28	0.00			
Sat Flow, veh/h				1420	2988	239	1792	1881	0			
Grp Volume(v), veh/h				615	397	426	812	205	0			
Grp Sat Flow(s),veh/h/ln				1420	1558	1670	1792	1881	0			
Q Serve(g_s), s				16.6	6.3	6.4	34.0	10.5	0.0			
Cycle Q Clear(g_c), s				16.6	6.3	6.4	34.0	10.5	0.0			
Prop In Lane				1.00		0.14	1.00		0.00			
Lane Grp Cap(c), veh/h				983	1013	1085	568	533	0			
V/C Ratio(X)				0.63	0.39	0.39	1.43	0.38	0.00			
Avail Cap(c_a), veh/h				983	1013	1085	568	533	0			
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)				0.62	0.62	0.62	0.09	0.09	0.00			
Uniform Delay (d), s/veh				4.0	3.3	3.4	44.8	34.6	0.0			
Incr Delay (d2), s/veh				1.9	0.7	0.7	194.7	0.0	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				10.0	4.9	5.2	85.5	6.6	0.0			
LnGrp Delay(d),s/veh				5.9	4.0	4.0	239.5	34.6	0.0			
LnGrp LOS				A	A	A	F	C				
Approach Vol, veh/h					1438			1017				
Approach Delay, s/veh					4.8			198.2				
Approach LOS					A			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		82.0		38.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		76.0		32.0				
Max Q Clear Time (g_c+I1), s		18.6		36.0				
Green Ext Time (p_c), s		3.6		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	84.9
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	81	914	232	71	646	0	0	831	192
Future Volume (veh/h)	0	0	0	81	914	232	71	646	0	0	831	192
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				89	1004	255	78	710	0	0	913	211
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				207	2465	650	144	1052	0	0	619	143
Arrive On Green				0.85	0.85	0.82	0.05	0.30	0.00	0.00	0.22	0.20
Sat Flow, veh/h				325	3877	1022	1774	3632	0	0	2950	660
Grp Volume(v), veh/h				506	423	420	78	710	0	0	565	559
Grp Sat Flow(s),veh/h/ln				1847	1695	1682	1774	1770	0	0	1770	1746
Q Serve(g_s), s				8.0	6.9	7.4	4.1	21.2	0.0	0.0	26.0	26.0
Cycle Q Clear(g_c), s				8.0	6.9	7.4	4.1	21.2	0.0	0.0	26.0	26.0
Prop In Lane				0.18		0.61	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h				1174	1078	1070	144	1052	0	0	383	378
V/C Ratio(X)				0.43	0.39	0.39	0.54	0.67	0.00	0.00	1.47	1.48
Avail Cap(c_a), veh/h				1174	1078	1070	444	1652	0	0	383	378
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.81	0.81	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				4.0	3.9	4.3	36.8	37.1	0.0	0.0	47.0	47.4
Incr Delay (d2), s/veh				1.2	1.1	1.1	1.0	0.2	0.0	0.0	227.2	228.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				7.8	6.3	6.5	3.6	15.2	0.0	0.0	66.4	65.7
LnGrp Delay(d),s/veh				5.1	5.0	5.4	37.8	37.3	0.0	0.0	274.2	275.7
LnGrp LOS				A	A	A	D	D			F	F
Approach Vol, veh/h					1348			788			1124	
Approach Delay, s/veh					5.2			37.3			274.9	
Approach LOS					A			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		80.3		39.7			9.7	30.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		54.0		54.0			26.0	24.0
Max Q Clear Time (g_c+I1), s		10.0		23.2			6.1	28.0
Green Ext Time (p_c), s		3.4		2.0			0.1	0.0

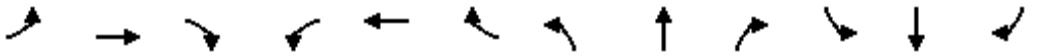
Intersection Summary	
HCM 2010 Ctrl Delay	105.9
HCM 2010 LOS	F

Lane Group	EBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	362	454	1314	418	1216
v/c Ratio	0.48	1.90	0.47	0.72	0.50
Control Delay	16.0	444.7	0.6	23.4	13.1
Queue Delay	0.0	0.0	0.0	10.7	0.2
Total Delay	16.0	444.7	0.6	34.1	13.3
Queue Length 50th (ft)	40	~295	0	97	94
Queue Length 95th (ft)	63	#460	0	223	120
Internal Link Dist (ft)	113				39
Turn Bay Length (ft)					
Base Capacity (vph)	1625	239	2814	593	3337
Starvation Cap Reductn	0	0	0	148	1067
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	1.90	0.47	0.94	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	171	122	0	0	0	368	0	1064	677	565	81
Future Volume (vph)	0	171	122	0	0	0	368	0	1064	677	565	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0		4.0	4.0	4.0	
Lane Util. Factor		0.95					1.00		0.88	0.86	0.86	
Frt		0.94					1.00		0.85	1.00	0.99	
Flt Protected		1.00					0.95		1.00	0.95	0.98	
Satd. Flow (prot)		3351					1787		2814	1537	4713	
Flt Permitted		1.00					0.95		1.00	0.95	0.98	
Satd. Flow (perm)		3351					1787		2814	1537	4713	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	0	211	151	0	0	0	454	0	1314	836	698	100
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	0	92	61	0
Lane Group Flow (vph)	0	240	0	0	0	0	454	0	1314	326	1155	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA					Prot		Free	custom	NA	
Protected Phases		8					1				2 7	
Permitted Phases									Free	2		
Actuated Green, G (s)		11.8					8.1		67.7	20.4	32.8	
Effective Green, g (s)		12.8					9.1		67.7	21.4	33.8	
Actuated g/C Ratio		0.19					0.13		1.00	0.32	0.50	
Clearance Time (s)		5.0					5.0			5.0		
Vehicle Extension (s)		2.5					2.0			1.0		
Lane Grp Cap (vph)		633					240		2814	485	2353	
v/s Ratio Prot		0.07					c0.25					
v/s Ratio Perm									c0.47	c0.21	0.25	
v/c Ratio		0.38					1.89		0.47	0.67	0.49	
Uniform Delay, d1		24.0					29.3		0.0	20.1	11.2	
Progression Factor		1.00					1.00		1.00	1.04	1.16	
Incremental Delay, d2		0.3					416.6		0.6	2.6	0.1	
Delay (s)		24.3					445.9		0.6	23.6	13.1	
Level of Service		C					F		A	C	B	
Approach Delay (s)		24.3			0.0			114.9			15.8	
Approach LOS		C			A			F			B	

Intersection Summary			
HCM 2000 Control Delay	63.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1950	0	0	0	0	0	0	16	49	0	0
Future Volume (veh/h)	0	1950	0	0	0	0	0	0	16	49	0	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	0				0	0	1881	1881	0	0
Adj Flow Rate, veh/h	0	2241	0				0	0	18	56	0	0
Adj No. of Lanes	0	3	0				0	0	1	1	0	0
Peak Hour Factor	0.87	0.87	0.87				0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	1	0				0	0	1	1	0	0
Cap, veh/h	0	0	0				0	0	0	125	0	0
Arrive On Green	0.00	0.01	0.00				0.00	0.00	0.01	0.07	0.00	0.00
Sat Flow, veh/h		0						0		1792	56	
Grp Volume(v), veh/h		0.0						0.0		56	42.1	
Grp Sat Flow(s),veh/h/ln										1792	D	
Q Serve(g_s), s										2.7		
Cycle Q Clear(g_c), s										2.7		
Prop In Lane										1.00		
Lane Grp Cap(c), veh/h										125		
V/C Ratio(X)										0.45		
Avail Cap(c_a), veh/h										219		
HCM Platoon Ratio										1.00		
Upstream Filter(I)										1.00		
Uniform Delay (d), s/veh										40.2		
Incr Delay (d2), s/veh										1.9		
Initial Q Delay(d3),s/veh										0.0		
%ile BackOfQ(95%),veh/ln										2.5		
LnGrp Delay(d),s/veh										42.1		
LnGrp LOS										D		
Approach Vol, veh/h												
Approach Delay, s/veh												
Approach LOS												

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3					
Phs Duration (G+Y+Rc), s			10.3					
Change Period (Y+Rc), s			5.0					
Max Green Setting (Gmax), s			10.0					
Max Q Clear Time (g_c+I1), s			4.7					
Green Ext Time (p_c), s			0.0					

Intersection Summary	
HCM 2010 Ctrl Delay	42.1
HCM 2010 LOS	D

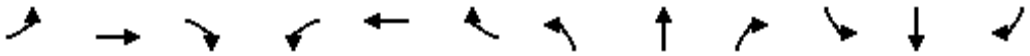
Lane Group	EBT	EBR	SBT
Lane Group Flow (vph)	1760	677	1542
v/c Ratio	1.15	0.98	1.43dl
Control Delay	101.3	57.0	45.8
Queue Delay	0.0	0.0	0.0
Total Delay	101.3	57.0	45.8
Queue Length 50th (ft)	~728	439	339
Queue Length 95th (ft)	#826	#678	#434
Internal Link Dist (ft)	476		29
Turn Bay Length (ft)		80	
Base Capacity (vph)	1535	690	1570
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.15	0.98	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.



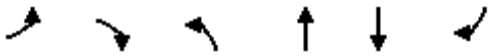
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1138	982	0	0	0	0	0	0	35	1307	0
Future Volume (vph)	0	1138	982	0	0	0	0	0	0	35	1307	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0								4.0	
Lane Util. Factor		0.91	0.91								0.91	
Frt		0.96	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		3325	1470								5180	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		3325	1470								5180	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	1308	1129	0	0	0	0	0	0	40	1502	0
RTOR Reduction (vph)	0	6	15	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	1754	662	0	0	0	0	0	0	0	1527	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA	Perm								NA	
Protected Phases		6									8	
Permitted Phases			6									
Actuated Green, G (s)		44.4	44.4								44.5	
Effective Green, g (s)		46.0	46.0								46.0	
Actuated g/C Ratio		0.46	0.46								0.46	
Clearance Time (s)		5.6	5.6								5.5	
Vehicle Extension (s)		1.0	1.0								2.5	
Lane Grp Cap (vph)		1529	676								2382	
v/s Ratio Prot		c0.53										
v/s Ratio Perm			0.45								0.29	
v/c Ratio		1.15	0.98								1.43dl	
Uniform Delay, d1		27.0	26.5								20.7	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		74.3	30.0								0.5	
Delay (s)		101.3	56.6								21.2	
Level of Service		F	E								C	
Approach Delay (s)		88.9			0.0			0.0			21.2	
Approach LOS		F			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	62.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	EBR	SBT
Lane Group Flow (vph)	1056	667
v/c Ratio	0.66	0.41
Control Delay	12.2	19.8
Queue Delay	0.5	0.3
Total Delay	12.7	20.1
Queue Length 50th (ft)	154	76
Queue Length 95th (ft)	171	109
Internal Link Dist (ft)		177
Turn Bay Length (ft)		
Base Capacity (vph)	2390	1680
Starvation Cap Reductn	0	458
Spillback Cap Reductn	824	1
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.67	0.55

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	834	0	0	527	0
Future Volume (vph)	0	834	0	0	527	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	
Lane Util. Factor		0.88			0.91	
Frt		0.85			1.00	
Flt Protected		1.00			1.00	
Satd. Flow (prot)		2814			5136	
Flt Permitted		1.00			1.00	
Satd. Flow (perm)		2814			5136	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	1056	0	0	667	0
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	0	1043	0	0	667	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		custom			NA	
Protected Phases		1 4			2	
Permitted Phases						
Actuated Green, G (s)		37.3			20.4	
Effective Green, g (s)		38.3			21.4	
Actuated g/C Ratio		0.57			0.32	
Clearance Time (s)					5.0	
Vehicle Extension (s)					1.0	
Lane Grp Cap (vph)		1591			1623	
v/s Ratio Prot		c0.37			c0.13	
v/s Ratio Perm						
v/c Ratio		0.66			0.41	
Uniform Delay, d1		10.1			18.2	
Progression Factor		1.00			1.00	
Incremental Delay, d2		0.7			0.1	
Delay (s)		10.9			18.3	
Level of Service		B			B	
Approach Delay (s)	10.9			0.0	18.3	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	211	1760	0	0	0	0	0	304	212
Future Volume (veh/h)	0	0	0	211	1760	0	0	0	0	0	304	212
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1827	0				0	1827	1827
Adj Flow Rate, veh/h				254	2120	0				0	366	0
Adj No. of Lanes				0	2	0				0	2	1
Peak Hour Factor				0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %				4	4	0				0	4	4
Cap, veh/h				234	1654	0				0	1250	528
Arrive On Green				0.56	0.56	0.00				0.00	0.48	0.00
Sat Flow, veh/h				341	3038	0				0	3563	1553
Grp Volume(v), veh/h				1278	1096	0				0	366	0
Grp Sat Flow(s),veh/h/ln				1716	1579	0				0	1736	1553
Q Serve(g_s), s				56.0	56.0	0.0				0.0	6.4	0.0
Cycle Q Clear(g_c), s				56.0	56.0	0.0				0.0	6.4	0.0
Prop In Lane				0.20		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				1004	884	0				0	1250	528
V/C Ratio(X)				1.27	1.24	0.00				0.00	0.29	0.00
Avail Cap(c_a), veh/h				1004	884	0				0	1250	528
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.33	1.33
Upstream Filter(I)				0.43	0.43	0.00				0.00	1.00	0.00
Uniform Delay (d), s/veh				23.2	22.0	0.0				0.0	18.3	0.0
Incr Delay (d2), s/veh				126.3	111.9	0.0				0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				113.1	92.8	0.0				0.0	5.7	0.0
LnGrp Delay(d),s/veh				149.5	133.9	0.0				0.0	18.9	0.0
LnGrp LOS				F	F						B	
Approach Vol, veh/h					2374						366	
Approach Delay, s/veh					142.3						18.9	
Approach LOS					F						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		40.0		60.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		34.0		54.0				
Max Q Clear Time (g_c+I1), s		8.4		58.0				
Green Ext Time (p_c), s		0.9		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	125.8
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
408: SE 1st Ave & SE 2nd St

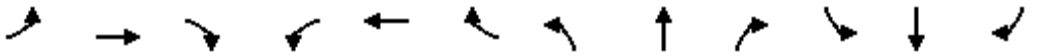
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	473	197	1441	935	0	0	0	0
Future Volume (veh/h)	0	0	0	0	473	197	1441	935	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1881	1900	1900	1881	0			
Adj Flow Rate, veh/h				0	676	281	2059	1336	0			
Adj No. of Lanes				0	2	0	0	3	0			
Peak Hour Factor				0.70	0.70	0.70	0.70	0.70	0.70			
Percent Heavy Veh, %				0	1	1	1	1	0			
Cap, veh/h				0	776	322	867	1745	0			
Arrive On Green				0.00	0.31	0.29	0.74	0.74	0.00			
Sat Flow, veh/h				0	2558	1024	1420	3270	0			
Grp Volume(v), veh/h				0	490	467	2059	1336	0			
Grp Sat Flow(s),veh/h/ln				0	1787	1700	1420	1558	0			
Q Serve(g_s), s				0.0	25.9	26.0	56.0	25.5	0.0			
Cycle Q Clear(g_c), s				0.0	25.9	26.0	56.0	25.5	0.0			
Prop In Lane				0.00		0.60	1.00		0.00			
Lane Grp Cap(c), veh/h				0	563	535	867	1745	0			
V/C Ratio(X)				0.00	0.87	0.87	2.37	0.77	0.00			
Avail Cap(c_a), veh/h				0	643	612	867	1745	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00			
Upstream Filter(I)				0.00	0.64	0.64	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	32.3	32.9	15.1	8.9	0.0			
Incr Delay (d2), s/veh				0.0	7.0	7.3	622.2	3.3	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				0.0	18.8	18.1	310.3	17.0	0.0			
LnGrp Delay(d),s/veh				0.0	39.3	40.3	637.3	12.1	0.0			
LnGrp LOS					D	D	F	B				
Approach Vol, veh/h					957			3395				
Approach Delay, s/veh					39.8			391.3				
Approach LOS					D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				35.5		60.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				34.0		54.0		
Max Q Clear Time (g_c+I1), s				28.0		58.0		
Green Ext Time (p_c), s				1.5		0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		314.0
HCM 2010 LOS		F

Lane Group	WBL	WBT	SBT	SBR
Lane Group Flow (vph)	398	894	516	296
v/c Ratio	0.62	0.82	0.32	0.35
Control Delay	11.7	29.3	17.8	4.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.7	29.3	17.8	4.8
Queue Length 50th (ft)	93	353	106	17
Queue Length 95th (ft)	258	493	144	65
Internal Link Dist (ft)		55	215	
Turn Bay Length (ft)				
Base Capacity (vph)	644	1086	1612	854
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	0.82	0.32	0.35

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	689	473	0	0	0	0	0	464	266
Future Volume (vph)	0	0	0	689	473	0	0	0	0	0	464	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	4.0
Lane Util. Factor				*0.63	*0.63						0.95	1.00
Frt				1.00	1.00						1.00	0.85
Flt Protected				0.95	0.98						1.00	1.00
Satd. Flow (prot)				1104	2277						3505	1568
Flt Permitted				0.95	0.98						1.00	1.00
Satd. Flow (perm)				1104	2277						3505	1568
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	766	526	0	0	0	0	0	516	296
RTOR Reduction (vph)	0	0	0	137	39	0	0	0	0	0	0	133
Lane Group Flow (vph)	0	0	0	261	855	0	0	0	0	0	516	163
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Split	NA						NA	Perm
Protected Phases				2	2						8	
Permitted Phases												8
Actuated Green, G (s)				44.0	44.0						44.0	44.0
Effective Green, g (s)				46.0	46.0						46.0	46.0
Actuated g/C Ratio				0.46	0.46						0.46	0.46
Clearance Time (s)				6.0	6.0						6.0	6.0
Lane Grp Cap (vph)				507	1047						1612	721
v/s Ratio Prot				0.24	c0.38						c0.15	
v/s Ratio Perm												0.10
v/c Ratio				0.52	0.82						0.32	0.23
Uniform Delay, d1				19.1	23.4						17.1	16.3
Progression Factor				1.00	1.00						1.00	1.00
Incremental Delay, d2				3.7	7.1						0.5	0.7
Delay (s)				22.8	30.4						17.6	17.0
Level of Service				C	C						B	B
Approach Delay (s)		0.0			28.1			0.0			17.4	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
501: NW 3rd Ct/SB On-Ramp/NW 3rd Ct & NW 2nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	38	91	49	0	0	0	0	0	352	1605	0
Future Volume (veh/h)	0	38	91	49	0	0	0	0	0	352	1605	0
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	0	0				1863	1863	0
Adj Flow Rate, veh/h	0	40	97	52	0	0				374	1707	0
Adj No. of Lanes	0	1	1	1	0	0				1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	0	0				2	2	0
Cap, veh/h	0	166	141	137	0	0				1266	3630	0
Arrive On Green	0.00	0.09	0.09	0.08	0.00	0.00				0.24	0.24	0.00
Sat Flow, veh/h	0	1863	1583	1774	52					1774	5253	0
Grp Volume(v), veh/h	0	40	97	52	45.2					374	1707	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1774	D					1774	1695	0
Q Serve(g_s), s	0.0	2.0	5.9	2.8						17.3	28.9	0.0
Cycle Q Clear(g_c), s	0.0	2.0	5.9	2.8						17.3	28.9	0.0
Prop In Lane	0.00		1.00	1.00						1.00		0.00
Lane Grp Cap(c), veh/h	0	166	141	137						1266	3630	0
V/C Ratio(X)	0.00	0.24	0.69	0.38						0.30	0.47	0.00
Avail Cap(c_a), veh/h	0	391	333	302						1266	3630	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00						0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99						0.89	0.89	0.00
Uniform Delay (d), s/veh	0.0	42.4	44.2	43.9						17.6	22.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	4.4	1.3						0.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0						0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.9	5.0	2.6						13.3	19.4	0.0
LnGrp Delay(d),s/veh	0.0	42.9	48.6	45.2						18.1	22.4	0.0
LnGrp LOS		D	D	D						B	C	
Approach Vol, veh/h		137									2081	
Approach Delay, s/veh		46.9									21.6	
Approach LOS		D									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2					7	8
Phs Duration (G+Y+Rc), s		75.4					11.7	12.9
Change Period (Y+Rc), s		* 4.3					* 4.7	* 4.7
Max Green Setting (Gmax), s		* 50					* 16	* 20
Max Q Clear Time (g_c+I1), s		19.3					4.8	7.9
Green Ext Time (p_c), s		0.1					0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.7
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	NBT	NWL	NWR
Lane Group Flow (vph)	21	208	28	19	1354	52	212
v/c Ratio	0.09	0.68	0.10	0.06	1.15	0.17	0.62
Control Delay	44.9	56.4	25.0	0.4	103.4	36.5	32.0
Queue Delay	0.1	8.9	0.0	0.1	1.9	0.0	0.5
Total Delay	44.9	65.3	25.0	0.5	105.3	36.5	32.5
Queue Length 50th (ft)	11	104	10	0	~852	28	81
Queue Length 95th (ft)	38	217	33	0	#1100	62	164
Internal Link Dist (ft)		109	427		348	296	
Turn Bay Length (ft)				90			
Base Capacity (vph)	305	413	379	388	1175	306	343
Starvation Cap Reductn	0	166	0	0	0	0	0
Spillback Cap Reductn	53	0	0	70	374	0	17
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.84	0.07	0.06	1.69	0.17	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NWL	NWR	NWR2
Lane Configurations										
Traffic Volume (vph)	19	185	16	26	31	976	198	16	176	43
Future Volume (vph)	19	185	16	26	31	976	198	16	176	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	0.95	0.95		*0.60		1.00	0.95	
Frt	1.00	1.00	0.95	0.85		0.98		0.90	0.85	
Flt Protected	0.95	1.00	1.00	1.00		1.00		0.98	1.00	
Satd. Flow (prot)	1787	1881	1691	1519		2199		1668	1516	
Flt Permitted	0.74	1.00	1.00	1.00		1.00		0.98	1.00	
Satd. Flow (perm)	1388	1881	1691	1519		2199		1668	1516	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	21	208	18	29	35	1097	222	18	198	48
RTOR Reduction (vph)	0	0	8	16	0	0	0	0	65	0
Lane Group Flow (vph)	21	208	20	3	0	1354	0	52	147	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Perm	NA	NA	Perm	Perm	NA		Prot	Perm	
Protected Phases		8	4			5		6		
Permitted Phases	8			4	5				6	
Actuated Green, G (s)	14.5	14.5	14.5	14.5		52.9		17.6	17.6	
Effective Green, g (s)	16.2	16.2	16.2	16.2		53.5		18.3	18.3	
Actuated g/C Ratio	0.16	0.16	0.16	0.16		0.54		0.18	0.18	
Clearance Time (s)	5.7	5.7	5.7	5.7		4.6		4.7	4.7	
Vehicle Extension (s)	1.0	1.0	1.0	1.0		1.0		1.0	1.0	
Lane Grp Cap (vph)	224	304	273	246		1176		305	277	
v/s Ratio Prot		c0.11	0.01					0.03		
v/s Ratio Perm	0.02			0.00		0.62			c0.10	
v/c Ratio	0.09	0.68	0.07	0.01		1.15		0.17	0.53	
Uniform Delay, d1	35.7	39.5	35.5	35.2		23.2		34.4	37.0	
Progression Factor	1.32	1.16	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.1	4.9	0.0	0.0		78.2		1.2	7.1	
Delay (s)	47.2	50.5	35.6	35.2		101.5		35.7	44.0	
Level of Service	D	D	D	D		F		D	D	
Approach Delay (s)		50.2	35.4			101.5		42.4		
Approach LOS		D	D			F		D		

Intersection Summary			
HCM 2000 Control Delay	85.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
503: NW 3rd Ct & NW 3rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	62	56	0	0	0	0	480	1905	18
Future Volume (veh/h)	0	0	0	62	56	0	0	0	0	480	1905	18
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1881	1881	0				1881	1881	1900
Adj Flow Rate, veh/h				62	63	0				505	2005	19
Adj No. of Lanes				1	1	0				1	3	0
Peak Hour Factor				0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %				1	1	0				1	1	1
Cap, veh/h				139	146	0				1581	4418	42
Arrive On Green				0.08	0.08	0.00				1.00	1.00	1.00
Sat Flow, veh/h				1792	1881	0				1792	5246	50
Grp Volume(v), veh/h				62	63	0				505	1308	716
Grp Sat Flow(s),veh/h/ln				1792	1881	0				1792	1712	1872
Q Serve(g_s), s				3.3	3.2	0.0				0.0	0.0	0.0
Cycle Q Clear(g_c), s				3.3	3.2	0.0				0.0	0.0	0.0
Prop In Lane				1.00		0.00				1.00		0.03
Lane Grp Cap(c), veh/h				139	146	0				1581	2883	1577
V/C Ratio(X)				0.44	0.43	0.00				0.32	0.45	0.45
Avail Cap(c_a), veh/h				484	508	0				1581	2883	1577
HCM Platoon Ratio				1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)				0.94	0.94	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh				44.0	44.0	0.0				0.0	0.0	0.0
Incr Delay (d2), s/veh				1.5	1.4	0.0				0.5	0.5	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				3.1	3.1	0.0				0.4	0.4	0.7
LnGrp Delay(d),s/veh				45.6	45.4	0.0				0.5	0.5	0.9
LnGrp LOS				D	D					A	A	A
Approach Vol, veh/h					125						2529	
Approach Delay, s/veh					45.5						0.6	
Approach LOS					D						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		88.2		11.8				
Change Period (Y+Rc), s		* 4.7		5.0				
Max Green Setting (Gmax), s		* 64		26.0				
Max Q Clear Time (g_c+I1), s		2.0		5.3				
Green Ext Time (p_c), s		7.4		0.3				

Intersection Summary	
HCM 2010 Ctrl Delay	2.8
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
504: NW 3rd Ave & NW 3rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	427	0	0	85	242	27	922	270	0	0	0
Future Volume (veh/h)	77	427	0	0	85	242	27	922	270	0	0	0
Number	7	4	14	3	8	18	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1900	1900	1881	1881			
Adj Flow Rate, veh/h	94	521	0	0	104	295	33	1124	329			
Adj No. of Lanes	1	1	0	0	2	0	0	2	1			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	226	588	0	0	558	500	54	1909	971			
Arrive On Green	0.31	0.31	0.00	0.00	0.31	0.30	0.81	0.81	0.81			
Sat Flow, veh/h	991	1881	0	0	1881	1599	89	3143	1599			
Grp Volume(v), veh/h	94	521	0	0	104	295	699	458	329			
Grp Sat Flow(s),veh/h/ln	991	1881	0	0	1787	1599	1877	1354	1599			
Q Serve(g_s), s	8.8	26.3	0.0	0.0	4.2	15.7	14.2	11.8	5.4			
Cycle Q Clear(g_c), s	24.6	26.3	0.0	0.0	4.2	15.7	14.2	11.8	5.4			
Prop In Lane	1.00		0.00	0.00		1.00	0.05		1.00			
Lane Grp Cap(c), veh/h	226	588	0	0	558	500	1140	823	971			
V/C Ratio(X)	0.42	0.89	0.00	0.00	0.19	0.59	0.61	0.56	0.34			
Avail Cap(c_a), veh/h	273	677	0	0	643	576	1140	823	971			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	1.00	0.09	0.09	0.09			
Uniform Delay (d), s/veh	39.4	32.7	0.0	0.0	25.1	29.7	5.1	4.9	4.3			
Incr Delay (d2), s/veh	0.4	10.8	0.0	0.0	0.1	0.9	0.2	0.2	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	4.4	21.6	0.0	0.0	3.8	11.4	8.4	5.3	3.1			
LnGrp Delay(d),s/veh	39.8	43.5	0.0	0.0	25.2	30.6	5.4	5.2	4.4			
LnGrp LOS	D	D			C	C	A	A	A			
Approach Vol, veh/h		615			399			1486				
Approach Delay, s/veh		42.9			29.2			5.1				
Approach LOS		D			C			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				35.2		64.8		35.2
Change Period (Y+Rc), s				5.5		5.5		5.5
Max Green Setting (Gmax), s				34.5		54.5		34.5
Max Q Clear Time (g_c+I1), s				28.3		16.2		17.7
Green Ext Time (p_c), s				1.4		3.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	406	150	45	82	0	0	0	0	405	1629	84
Future Volume (veh/h)	0	406	150	45	82	0	0	0	0	405	1629	84
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1900	1845	1845	0				1900	1845	1900
Adj Flow Rate, veh/h	0	446	165	49	90	0				445	1790	92
Adj No. of Lanes	0	1	0	1	1	0				0	4	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	3	3	3	3	0				0	3	0
Cap, veh/h	0	270	100	72	387	0				856	3745	194
Arrive On Green	0.00	0.21	0.20	0.21	0.21	0.00				0.94	0.94	0.93
Sat Flow, veh/h	0	1285	475	799	1845	0				1205	5274	274
Grp Volume(v), veh/h	0	0	611	49	90	0				659	1065	603
Grp Sat Flow(s),veh/h/ln	0	0	1761	799	1845	0				1784	1586	1796
Q Serve(g_s), s	0.0	0.0	21.0	0.0	4.1	0.0				4.0	3.4	3.5
Cycle Q Clear(g_c), s	0.0	0.0	21.0	21.0	4.1	0.0				4.0	3.4	3.5
Prop In Lane	0.00		0.27	1.00		0.00				0.68		0.15
Lane Grp Cap(c), veh/h	0	0	370	72	387	0				1267	2253	1275
V/C Ratio(X)	0.00	0.00	1.65	0.68	0.23	0.00				0.52	0.47	0.47
Avail Cap(c_a), veh/h	0	0	370	72	387	0				1267	2253	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	1.00	0.75	0.75	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	39.6	50.0	32.8	0.0				0.9	0.9	0.9
Incr Delay (d2), s/veh	0.0	0.0	305.4	16.6	0.2	0.0				1.5	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	74.8	3.0	3.8	0.0				4.1	2.6	3.3
LnGrp Delay(d),s/veh	0.0	0.0	345.1	66.6	33.0	0.0				2.4	1.6	2.2
LnGrp LOS			F	E	C					A	A	A
Approach Vol, veh/h		611			139						2327	
Approach Delay, s/veh		345.1			44.8						2.0	
Approach LOS		F			D						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		75.0		25.0				25.0
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		70.0		20.0				20.0
Max Q Clear Time (g_c+I1), s		6.0		23.0				23.0
Green Ext Time (p_c), s		8.6		0.0				0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.1
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
602: NW 3rd Ave/NW 3rd Ave/NB On-Ramp & NW 8th St

2045 No Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	537	0	0	101	311	28	925	76	0	0	0
Future Volume (veh/h)	182	537	0	0	101	311	28	925	76	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1810	1810	1810			
Adj Flow Rate, veh/h	200	590	0	0	111	342	31	1016	84			
Adj No. of Lanes	1	1	0	0	1	0	1	2	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	309	854	0	0	185	569	772	1540	689			
Arrive On Green	0.47	0.47	0.00	0.00	0.47	0.46	0.60	0.60	0.60			
Sat Flow, veh/h	907	1810	0	0	391	1206	1723	3438	1538			
Grp Volume(v), veh/h	200	590	0	0	0	453	31	1016	84			
Grp Sat Flow(s),veh/h/ln	907	1810	0	0	0	1597	1723	1719	1538			
Q Serve(g_s), s	20.9	25.5	0.0	0.0	0.0	21.1	0.7	19.7	2.4			
Cycle Q Clear(g_c), s	42.0	25.5	0.0	0.0	0.0	21.1	0.7	19.7	2.4			
Prop In Lane	1.00		0.00	0.00		0.75	1.00		1.00			
Lane Grp Cap(c), veh/h	309	854	0	0	0	754	772	1540	689			
V/C Ratio(X)	0.65	0.69	0.00	0.00	0.00	0.60	0.04	0.66	0.12			
Avail Cap(c_a), veh/h	343	923	0	0	0	814	772	1540	689			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.27	0.27	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	35.0	20.7	0.0	0.0	0.0	19.8	11.3	15.1	11.6			
Incr Delay (d2), s/veh	0.9	0.5	0.0	0.0	0.0	0.9	0.1	2.2	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	7.3	16.0	0.0	0.0	0.0	14.5	0.7	14.8	1.9			
LnGrp Delay(d),s/veh	35.9	21.2	0.0	0.0	0.0	20.7	11.4	17.4	12.0			
LnGrp LOS	D	C				C	B	B	B			
Approach Vol, veh/h		790			453			1131				
Approach Delay, s/veh		24.9			20.7			16.8				
Approach LOS		C			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		48.8		51.2				51.2
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		40.0		50.0				50.0
Max Q Clear Time (g_c+I1), s		21.7		23.1				44.0
Green Ext Time (p_c), s		5.2		2.7				2.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
701: NW 62nd St & NW 7th Ave/SR 7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	782	97	134	579	59	191	619	271	181	1044	100
Future Volume (veh/h)	131	782	97	134	579	59	191	619	271	181	1044	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	139	832	103	143	616	63	203	659	288	193	1111	106
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	250	755	93	207	778	79	303	1100	481	372	1488	142
Arrive On Green	0.09	0.24	0.23	0.09	0.24	0.23	0.12	0.62	0.60	0.11	0.62	0.60
Sat Flow, veh/h	1740	3110	385	1740	3180	325	1740	2353	1028	1740	3203	305
Grp Volume(v), veh/h	139	464	471	143	336	343	203	486	461	193	601	616
Grp Sat Flow(s),veh/h/ln	1740	1736	1759	1740	1736	1770	1740	1736	1645	1740	1736	1773
Q Serve(g_s), s	8.1	34.0	34.0	8.4	25.4	25.5	8.4	23.6	24.1	7.9	34.4	34.6
Cycle Q Clear(g_c), s	8.1	34.0	34.0	8.4	25.4	25.5	8.4	23.6	24.1	7.9	34.4	34.6
Prop In Lane	1.00		0.22	1.00		0.18	1.00		0.62	1.00		0.17
Lane Grp Cap(c), veh/h	250	421	427	207	424	433	303	812	769	372	806	824
V/C Ratio(X)	0.55	1.10	1.10	0.69	0.79	0.79	0.67	0.60	0.60	0.52	0.75	0.75
Avail Cap(c_a), veh/h	334	421	427	288	424	433	335	812	769	409	806	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	53.0	53.2	38.1	49.5	49.7	22.7	18.6	19.2	18.3	20.9	21.1
Incr Delay (d2), s/veh	1.9	74.3	74.0	3.7	8.6	8.6	3.2	3.3	3.4	0.4	6.2	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.2	44.9	45.5	7.4	18.8	19.3	7.5	17.6	17.2	6.8	24.6	25.1
LnGrp Delay(d),s/veh	38.8	127.3	127.2	41.8	58.2	58.4	25.9	21.8	22.7	18.7	27.1	27.2
LnGrp LOS	D	F	F	D	E	E	C	C	C	B	C	C
Approach Vol, veh/h		1074			822			1150			1410	
Approach Delay, s/veh		115.8			55.4			22.9			26.0	
Approach LOS		F			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	69.5	16.5	38.0	16.4	69.1	16.3	38.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	13.0	54.0	17.0	32.0	13.0	54.0	17.0	32.0
Max Q Clear Time (g_c+I1), s	9.9	26.1	10.4	36.0	10.4	36.6	10.1	27.5
Green Ext Time (p_c), s	0.1	2.4	0.2	0.0	0.1	3.0	0.2	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	52.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
702: NW 6th Ave/SB On-Ramp/SB Off-Ramp & NW 62nd St

2045 No Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	986	404	1037	757	0	0	0	0	552	332	84
Future Volume (veh/h)	0	986	404	1037	757	0	0	0	0	552	332	84
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1900	1810	1810	0				1810	1810	1900
Adj Flow Rate, veh/h	0	1072	439	1127	823	0				600	361	91
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	963	388	209	1937	0				642	520	131
Arrive On Green	0.00	0.59	0.58	0.12	0.75	0.00				0.37	0.37	0.36
Sat Flow, veh/h	0	2590	875	1723	3529	0				1723	1396	352
Grp Volume(v), veh/h	0	681	830	1127	823	0				600	0	452
Grp Sat Flow(s),veh/h/ln	0	1393	1655	1723	1719	0				1723	0	1747
Q Serve(g_s), s	0.0	55.4	55.4	11.0	11.0	0.0				41.9	0.0	27.4
Cycle Q Clear(g_c), s	0.0	55.4	55.4	11.0	11.0	0.0				41.9	0.0	27.4
Prop In Lane	0.00		0.53	1.00		0.00				1.00		0.20
Lane Grp Cap(c), veh/h	0	618	734	209	1937	0				642	0	651
V/C Ratio(X)	0.00	1.10	1.13	5.39	0.42	0.00				0.93	0.00	0.69
Avail Cap(c_a), veh/h	0	618	734	209	1937	0				676	0	685
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.31	0.31	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	25.7	26.0	37.5	8.2	0.0				37.7	0.0	33.3
Incr Delay (d2), s/veh	0.0	54.1	65.1	1974.5	0.1	0.0				19.5	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	54.5	68.8	204.6	6.3	0.0				31.2	0.0	19.7
LnGrp Delay(d),s/veh	0.0	79.8	91.1	2012.1	8.3	0.0				57.2	0.0	35.9
LnGrp LOS		F	F	F	A					E		D
Approach Vol, veh/h		1511			1950						1052	
Approach Delay, s/veh		86.0			1166.4						48.1	
Approach LOS		F			F						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		74.4			15.0	59.4		50.6
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		67.0			12.0	52.0		48.0
Max Q Clear Time (g_c+I1), s		13.0			13.0	57.4		43.9
Green Ext Time (p_c), s		2.4			0.0	0.0		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	544.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	945	0	0	1237	159	585	547	467	0	0	0
Future Volume (veh/h)	590	945	0	0	1237	159	585	547	467	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1900	1810	1900			
Adj Flow Rate, veh/h	615	984	0	0	1289	166	609	570	486			
Adj No. of Lanes	1	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	5	5	0	5	0			
Cap, veh/h	218	2035	0	0	1321	169	413	399	350			
Arrive On Green	0.12	0.79	0.00	0.00	0.63	0.62	0.34	0.34	0.34			
Sat Flow, veh/h	1723	3529	0	0	3197	359	1201	1160	1018			
Grp Volume(v), veh/h	615	984	0	0	647	808	887	0	778			
Grp Sat Flow(s),veh/h/ln	1723	1719	0	0	1411	1746	1749	0	1630			
Q Serve(g_s), s	11.0	12.3	0.0	0.0	54.7	56.0	43.0	0.0	43.0			
Cycle Q Clear(g_c), s	11.0	12.3	0.0	0.0	54.7	56.0	43.0	0.0	43.0			
Prop In Lane	1.00		0.00	0.00		0.21	0.69		0.62			
Lane Grp Cap(c), veh/h	218	2035	0	0	666	824	602	0	561			
V/C Ratio(X)	2.82	0.48	0.00	0.00	0.97	0.98	1.47	0.00	1.39			
Avail Cap(c_a), veh/h	218	2035	0	0	666	824	602	0	561			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.74	0.74	1.00	0.00	1.00			
Uniform Delay (d), s/veh	37.3	6.7	0.0	0.0	22.5	22.8	41.0	0.0	41.3			
Incr Delay (d2), s/veh	821.4	0.1	0.0	0.0	23.8	22.5	222.0	0.0	185.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	97.1	6.8	0.0	0.0	32.5	39.6	104.1	0.0	86.8			
LnGrp Delay(d),s/veh	858.7	6.8	0.0	0.0	46.3	45.3	263.0	0.0	226.7			
LnGrp LOS	F	A			D	D	F		F			
Approach Vol, veh/h		1599			1455			1665				
Approach Delay, s/veh		334.5			45.7			246.0				
Approach LOS		F			D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	63.0		47.0		78.0		
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	10.0	58.0		42.0		73.0		
Max Q Clear Time (g_c+I1), s	13.0	58.0		45.0		14.3		
Green Ext Time (p_c), s	0.0	0.0		0.0		3.0		

Intersection Summary		
HCM 2010 Ctrl Delay		214.2
HCM 2010 LOS		F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	1044	236	55	953	18	175	167	35	46	232	202
Future Volume (veh/h)	121	1044	236	55	953	18	175	167	35	46	232	202
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	126	1088	246	57	993	19	182	174	36	48	242	210
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	1247	280	237	1486	28	365	463	394	396	354	301
Arrive On Green	0.08	0.43	0.41	0.07	0.42	0.39	0.12	0.25	0.25	0.06	0.19	0.19
Sat Flow, veh/h	1774	2872	646	1774	3552	68	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	126	668	666	57	495	517	182	174	36	48	242	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1749	1774	1770	1851	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.3	29.3	29.8	1.5	19.3	19.3	6.5	6.6	1.5	1.8	10.3	10.6
Cycle Q Clear(g_c), s	3.3	29.3	29.8	1.5	19.3	19.3	6.5	6.6	1.5	1.8	10.3	10.6
Prop In Lane	1.00		0.37	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	337	768	759	237	740	774	365	463	394	396	354	301
V/C Ratio(X)	0.37	0.87	0.88	0.24	0.67	0.67	0.50	0.38	0.09	0.12	0.68	0.70
Avail Cap(c_a), veh/h	440	994	982	368	994	1039	398	828	704	533	828	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	22.0	22.5	17.2	20.1	20.1	22.1	26.6	24.7	24.5	32.2	32.3
Incr Delay (d2), s/veh	0.3	5.7	6.2	0.2	0.4	0.4	0.4	0.4	0.1	0.1	1.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	22.0	22.1	1.3	14.5	15.0	5.7	6.2	1.2	1.5	9.3	8.4
LnGrp Delay(d),s/veh	14.5	27.7	28.7	17.4	20.5	20.5	22.5	27.0	24.7	24.6	34.0	34.5
LnGrp LOS	B	C	C	B	C	C	C	C	C	C	C	C
Approach Vol, veh/h		1460			1069			392			500	
Approach Delay, s/veh		27.0			20.3			24.7			33.3	
Approach LOS		C			C			C			C	

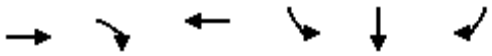
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	39.7	9.4	25.3	9.7	41.1	14.4	20.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	46.0	10.0	36.0	10.0	46.0	10.0	36.0
Max Q Clear Time (g_c+I1), s	5.3	21.3	3.8	8.6	3.5	31.8	8.5	12.6
Green Ext Time (p_c), s	0.1	2.4	0.0	0.9	0.0	3.3	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	996	50	69	328	34	139	586	170	341	1350	447
Future Volume (veh/h)	137	996	50	69	328	34	139	586	170	341	1350	447
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1900	1810	1810	1900	1810	1810	1810
Adj Flow Rate, veh/h	143	1038	52	72	342	35	145	610	177	355	1406	466
Adj No. of Lanes	1	2	0	1	2	0	1	3	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	410	1071	54	153	1005	102	217	1321	376	479	1471	746
Arrive On Green	0.06	0.32	0.31	0.11	0.64	0.61	0.08	0.35	0.33	0.33	0.86	0.86
Sat Flow, veh/h	1723	3332	167	1723	3152	320	1723	3823	1088	1723	3438	1538
Grp Volume(v), veh/h	143	535	555	72	186	191	145	524	263	355	1406	466
Grp Sat Flow(s),veh/h/ln	1723	1719	1780	1723	1719	1753	1723	1647	1618	1723	1719	1538
Q Serve(g_s), s	7.9	43.0	43.0	3.8	7.0	7.2	7.4	17.3	18.0	18.8	45.4	14.0
Cycle Q Clear(g_c), s	7.9	43.0	43.0	3.8	7.0	7.2	7.4	17.3	18.0	18.8	45.4	14.0
Prop In Lane	1.00		0.09	1.00		0.18	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	410	553	572	153	548	559	217	1138	559	479	1471	746
V/C Ratio(X)	0.35	0.97	0.97	0.47	0.34	0.34	0.67	0.46	0.47	0.74	0.96	0.62
Avail Cap(c_a), veh/h	410	553	572	157	553	563	396	1138	559	516	1471	746
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	29.9	46.8	46.9	33.6	18.5	18.8	32.2	35.6	36.4	18.3	9.1	5.6
Incr Delay (d2), s/veh	0.2	30.4	29.8	0.6	0.2	0.2	1.3	1.3	2.8	2.6	10.1	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.8	33.2	34.2	3.3	5.9	6.1	6.4	12.7	13.2	12.9	27.8	9.0
LnGrp Delay(d),s/veh	30.1	77.2	76.7	34.3	18.7	19.0	33.5	37.0	39.2	20.9	19.2	7.9
LnGrp LOS	C	E	E	C	B	B	C	D	D	C	B	A
Approach Vol, veh/h		1233			449			932			2227	
Approach Delay, s/veh		71.5			21.4			37.1			17.1	
Approach LOS		E			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	63.9	12.0	48.6	27.0	52.4	11.6	49.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	24.0	43.0	6.0	43.0	24.0	43.0	6.0	43.0
Max Q Clear Time (g_c+I1), s	9.4	47.4	9.9	9.2	20.8	20.0	5.8	45.0
Green Ext Time (p_c), s	0.2	0.0	0.0	1.9	0.2	2.1	0.0	0.0

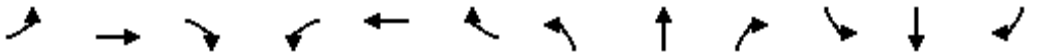
Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D



Lane Group	EBT	EBR	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1124	537	603	351	710	95
v/c Ratio	0.78	0.64	0.69	0.45	0.87	0.13
Control Delay	24.7	14.8	16.7	27.4	46.7	5.6
Queue Delay	3.1	1.4	1.7	0.0	7.9	0.0
Total Delay	27.9	16.2	18.4	27.4	54.6	5.6
Queue Length 50th (ft)	296	131	106	207	551	8
Queue Length 95th (ft)	m323	m160	m110	268	680	36
Internal Link Dist (ft)	267		223		463	
Turn Bay Length (ft)						
Base Capacity (vph)	1439	836	877	875	921	821
Starvation Cap Reductn	215	140	134	0	175	0
Spillback Cap Reductn	0	0	0	34	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.77	0.81	0.42	0.95	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1045	499	0	561	0	0	0	0	326	660	88
Future Volume (vph)	0	1045	499	0	561	0	0	0	0	326	660	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		*0.82	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	1.00	1.00
Satd. Flow (prot)		2940	1524		1792					1703	1792	1524
Flt Permitted		1.00	1.00		1.00					0.95	1.00	1.00
Satd. Flow (perm)		2940	1524		1792					1703	1792	1524
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	1124	537	0	603	0	0	0	0	351	710	95
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	0	1124	446	0	603	0	0	0	0	351	710	52
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type		NA	Perm		NA					pm+pt	NA	Perm
Protected Phases		6			1 2					8	3	
Permitted Phases			6	2						3		3
Actuated Green, G (s)		67.5	67.5		67.5					62.9	62.9	62.9
Effective Green, g (s)		68.5	68.5		66.5					63.5	63.5	63.5
Actuated g/C Ratio		0.49	0.49		0.48					0.45	0.45	0.45
Clearance Time (s)		5.0	5.0							4.6	4.6	4.6
Vehicle Extension (s)		1.0	1.0							3.0	3.5	3.5
Lane Grp Cap (vph)		1438	745		851					772	812	691
v/s Ratio Prot		c0.38			0.34					0.12	c0.40	
v/s Ratio Perm			0.29							0.08		0.03
v/c Ratio		0.78	0.60		0.71					0.45	0.87	0.08
Uniform Delay, d1		29.6	25.8		29.1					26.3	34.6	21.6
Progression Factor		0.70	0.67		0.50					1.00	1.00	1.00
Incremental Delay, d2		2.4	2.0		0.9					0.4	10.6	0.1
Delay (s)		23.0	19.2		15.3					26.8	45.2	21.7
Level of Service		C	B		B					C	D	C
Approach Delay (s)		21.8			15.3			0.0			37.7	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	349	1102	612	919	331
v/c Ratio	0.45	0.41	1.00	1.81	0.93
Control Delay	48.9	4.9	80.5	404.3	60.7
Queue Delay	0.1	0.7	0.4	0.0	0.0
Total Delay	49.0	5.6	80.9	404.3	60.7
Queue Length 50th (ft)	143	135	~596	~670	165
Queue Length 95th (ft)	m202	150	#834	#813	#376
Internal Link Dist (ft)		223	529	429	
Turn Bay Length (ft)	190				
Base Capacity (vph)	775	2663	615	507	355
Starvation Cap Reductn	39	1128	0	0	0
Spillback Cap Reductn	0	0	1	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.72	1.00	1.81	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1047	0	0	527	54	0	558	630	0	0	0
Future Volume (vph)	332	1047	0	0	527	54	0	558	630	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	4.0			
Lane Util. Factor	0.97	0.95			1.00			0.91	0.91			
Frt	1.00	1.00			0.99			0.95	0.85			
Flt Protected	0.95	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	3273	3374			1753			3057	1374			
Flt Permitted	0.43	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1491	3374			1753			3057	1374			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	349	1102	0	0	555	57	0	587	663	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	49	150	0	0	0
Lane Group Flow (vph)	349	1102	0	0	609	0	0	870	181	0	0	0
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	custom	NA			NA			NA	Perm			
Protected Phases	1	6 8			2			7				
Permitted Phases	8								7			
Actuated Green, G (s)	54.5	110.0			47.9			20.4	20.4			
Effective Green, g (s)	52.5	107.4			48.9			21.0	21.0			
Actuated g/C Ratio	0.38	0.77			0.35			0.15	0.15			
Clearance Time (s)	3.0				5.0			4.6	4.6			
Vehicle Extension (s)	2.0				1.0			2.5	2.5			
Lane Grp Cap (vph)	757	2588			612			458	206			
v/s Ratio Prot	0.05	c0.33			c0.35			c0.28				
v/s Ratio Perm	c0.12								0.13			
v/c Ratio	0.46	0.43			1.00			1.90	0.88			
Uniform Delay, d1	35.7	5.6			45.4			59.5	58.3			
Progression Factor	1.51	1.00			1.00			1.00	1.00			
Incremental Delay, d2	0.1	0.1			35.4			412.6	32.3			
Delay (s)	54.1	5.7			80.8			472.1	90.6			
Level of Service	D	A			F			F	F			
Approach Delay (s)		17.4			80.8			371.1			0.0	
Approach LOS		B			F			F			A	

Intersection Summary			
HCM 2000 Control Delay	162.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	518	471	502	19	726	0	0	1782	206
Future Volume (veh/h)	0	0	0	518	471	502	19	726	0	0	1782	206
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1881	1881	1881	1881	1881	0	0	1881	1900
Adj Flow Rate, veh/h				529	481	512	19	741	0	0	1818	210
Adj No. of Lanes				1	2	1	1	3	0	0	3	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				1	1	1	1	1	0	0	1	1
Cap, veh/h				589	1174	525	149	3155	0	0	2683	308
Arrive On Green				0.33	0.33	0.33	0.02	0.82	0.00	0.00	0.76	0.75
Sat Flow, veh/h				1792	3574	1599	1792	5305	0	0	4843	537
Grp Volume(v), veh/h				529	481	512	19	741	0	0	1329	699
Grp Sat Flow(s),veh/h/ln				1792	1787	1599	1792	1712	0	0	1712	1786
Q Serve(g_s), s				39.4	14.6	44.3	0.6	4.6	0.0	0.0	26.6	27.2
Cycle Q Clear(g_c), s				39.4	14.6	44.3	0.6	4.6	0.0	0.0	26.6	27.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.30
Lane Grp Cap(c), veh/h				589	1174	525	149	3155	0	0	1966	1026
V/C Ratio(X)				0.90	0.41	0.97	0.13	0.23	0.00	0.00	0.68	0.68
Avail Cap(c_a), veh/h				589	1174	525	294	3155	0	0	1966	1026
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.81	0.81	0.81	0.89	0.89	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				44.8	36.5	46.4	15.5	5.4	0.0	0.0	10.2	10.4
Incr Delay (d2), s/veh				14.2	0.2	28.9	0.1	0.2	0.0	0.0	1.9	3.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				28.6	11.2	46.3	0.6	3.9	0.0	0.0	18.7	20.2
LnGrp Delay(d),s/veh				58.9	36.7	75.3	15.6	5.5	0.0	0.0	12.1	14.1
LnGrp LOS				E	D	E	B	A			B	B
Approach Vol, veh/h					1522			760			2028	
Approach Delay, s/veh					57.4			5.8			12.8	
Approach LOS					E			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		90.0		50.0	5.6	84.4		
Change Period (Y+Rc), s		* 5.2		* 5.2	3.0	* 5.2		
Max Green Setting (Gmax), s		* 85		* 45	14.0	* 68		
Max Q Clear Time (g_c+I1), s		6.6		46.3	2.6	29.2		
Green Ext Time (p_c), s		2.2		0.0	0.0	7.5		

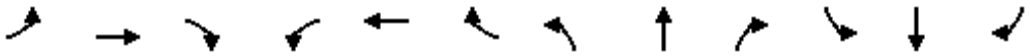
Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBT	SBT
Lane Group Flow (vph)	1836	792
v/c Ratio	0.56	0.81
Control Delay	3.9	51.7
Queue Delay	0.4	0.0
Total Delay	4.3	51.7
Queue Length 50th (ft)	63	341
Queue Length 95th (ft)	76	397
Internal Link Dist (ft)	240	535
Turn Bay Length (ft)		
Base Capacity (vph)	3296	1122
Starvation Cap Reductn	822	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.74	0.71

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	435	1272	0	0	0	0	0	582	154
Future Volume (vph)	0	0	0	435	1272	0	0	0	0	0	582	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.95	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4925						3362	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4925						3362	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	468	1368	0	0	0	0	0	626	166
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	0	0	0	1806	0	0	0	0	0	774	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Split	NA						NA	
Protected Phases				2 3	2 3						4	
Permitted Phases												
Actuated Green, G (s)					90.8						38.8	
Effective Green, g (s)					92.0						40.0	
Actuated g/C Ratio					0.66						0.29	
Clearance Time (s)											5.2	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)					3236						960	
v/s Ratio Prot					c0.37						c0.23	
v/s Ratio Perm												
v/c Ratio					0.56						0.81	
Uniform Delay, d1					13.0						46.4	
Progression Factor					0.26						1.00	
Incremental Delay, d2					0.1						5.0	
Delay (s)					3.5						51.4	
Level of Service					A						D	
Approach Delay (s)		0.0			3.5			0.0			51.4	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

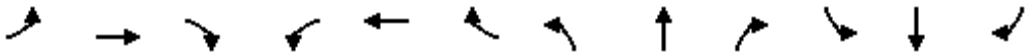
Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1661	1023	1112
v/c Ratio	0.74	1.26	0.66
Control Delay	35.4	156.4	16.6
Queue Delay	0.0	0.0	0.7
Total Delay	35.4	156.4	17.3
Queue Length 50th (ft)	461	~1080	198
Queue Length 95th (ft)	458	#1113	m145
Internal Link Dist (ft)	629		23
Turn Bay Length (ft)			
Base Capacity (vph)	2241	809	1858
Starvation Cap Reductn	0	0	382
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.74	1.26	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1312	808	328	551	0	0	0	0
Future Volume (vph)	0	0	0	0	1312	808	328	551	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		0.95				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.98				
Satd. Flow (prot)					4988	1553		3408				
Flt Permitted					1.00	1.00		0.98				
Satd. Flow (perm)					4988	1553		3408				
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	0	1661	1023	415	697	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	112	0	9	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1661	911	0	1103	0	0	0	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type					NA	Perm	Split	NA				
Protected Phases					2		8	8				
Permitted Phases						2						
Actuated Green, G (s)					61.7	61.7		67.9				
Effective Green, g (s)					62.9	62.9		69.1				
Actuated g/C Ratio					0.45	0.45		0.49				
Clearance Time (s)					5.2	5.2		5.2				
Vehicle Extension (s)					1.0	1.0		3.0				
Lane Grp Cap (vph)					2241	697		1682				
v/s Ratio Prot					0.33			c0.32				
v/s Ratio Perm						c0.59						
v/c Ratio					0.74	1.31		0.66				
Uniform Delay, d1					31.8	38.5		26.5				
Progression Factor					1.00	1.00		0.59				
Incremental Delay, d2					2.3	148.5		0.7				
Delay (s)					34.1	187.1		16.3				
Level of Service					C	F		B				
Approach Delay (s)		0.0			92.4			16.3			0.0	
Approach LOS		A			F			B			A	

Intersection Summary			
HCM 2000 Control Delay	70.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
1001: NW 7th Ave/SR 7 & NW 95th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	773	122	244	541	84	238	625	381	347	1927	123
Future Volume (veh/h)	89	773	122	244	541	84	238	625	381	347	1927	123
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	95	822	130	260	576	89	253	665	405	369	2050	131
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	312	772	547	275	918	612	291	1325	619	396	1911	121
Arrive On Green	0.08	0.22	0.22	0.24	0.52	0.52	0.17	0.52	0.49	0.17	0.52	0.49
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3390	1583	1774	4887	311
Grp Volume(v), veh/h	95	822	130	260	576	89	253	665	405	369	1419	762
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1808
Q Serve(g_s), s	4.4	24.0	6.4	12.7	12.8	2.8	11.1	14.0	21.1	14.0	43.0	43.0
Cycle Q Clear(g_c), s	4.4	24.0	6.4	12.7	12.8	2.8	11.1	14.0	21.1	14.0	43.0	43.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	312	772	547	275	918	612	291	1325	619	396	1325	707
V/C Ratio(X)	0.30	1.06	0.24	0.95	0.63	0.15	0.87	0.50	0.65	0.93	1.07	1.08
Avail Cap(c_a), veh/h	385	772	547	275	918	612	291	1325	619	396	1325	707
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	43.0	25.7	26.1	22.7	14.0	29.3	19.4	22.4	21.1	26.4	26.7
Incr Delay (d2), s/veh	0.2	50.9	0.2	38.4	1.2	0.1	22.5	1.4	5.3	28.4	46.0	57.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	30.9	5.1	13.9	10.3	2.2	14.1	11.0	15.2	12.0	50.8	58.1
LnGrp Delay(d),s/veh	29.4	93.9	25.8	64.5	23.9	14.1	51.8	20.8	27.8	49.5	72.4	83.7
LnGrp LOS	C	F	C	E	C	B	D	C	C	D	F	F
Approach Vol, veh/h		1047			925			1323			2550	
Approach Delay, s/veh		79.6			34.3			28.9			72.5	
Approach LOS		E			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	47.0	12.5	32.5	18.0	47.0	17.0	28.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	11.6	40.6	10.6	21.6	11.6	40.6	10.6	21.6
Max Q Clear Time (g_c+I1), s	13.1	45.0	6.4	14.8	16.0	23.1	14.7	26.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	2.9	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	57.8
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
1002: SB On-Ramp/SB Off-Ramp & NW 95th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰		↱
Traffic Volume (veh/h)	0	1094	441	650	620	0	0	0	0	156	34	170
Future Volume (veh/h)	0	1094	441	650	620	0	0	0	0	156	34	170
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1845	1845	1845	0				1845	1900	1845
Adj Flow Rate, veh/h	0	1140	0	677	646	0				162	35	177
Adj No. of Lanes	0	2	1	1	2	0				1	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	1837	805	694	2729	0				261	0	233
Arrive On Green	0.00	1.00	0.00	0.36	1.00	0.00				0.15	0.15	0.15
Sat Flow, veh/h	0	3597	1568	1757	3597	0				1757	0	1568
Grp Volume(v), veh/h	0	1140	0	677	646	0				162	0	177
Grp Sat Flow(s),veh/h/ln	0	1752	1568	1757	1752	0				1757	0	1568
Q Serve(g_s), s	0.0	0.0	0.0	24.0	0.0	0.0				9.5	0.0	11.9
Cycle Q Clear(g_c), s	0.0	0.0	0.0	24.0	0.0	0.0				9.5	0.0	11.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1837	805	694	2729	0				261	0	233
V/C Ratio(X)	0.00	0.62	0.00	0.98	0.24	0.00				0.62	0.00	0.76
Avail Cap(c_a), veh/h	0	1837	805	694	2729	0				415	0	371
HCM Platoon Ratio	1.00	2.00	2.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.30	0.30	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.3	0.0	0.0				43.9	0.0	44.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	13.3	0.1	0.0				2.9	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	17.4	0.0	0.0				8.5	0.0	9.4
LnGrp Delay(d),s/veh	0.0	0.1	0.0	21.7	0.1	0.0				46.8	0.0	51.0
LnGrp LOS		A		C	A					D		D
Approach Vol, veh/h		1140			1323						339	
Approach Delay, s/veh		0.1			11.1						49.0	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		89.7			28.0	61.7		20.3
Change Period (Y+Rc), s		* 5.2			3.0	* 5.2		5.4
Max Green Setting (Gmax), s		* 75			25.0	* 47		24.6
Max Q Clear Time (g_c+I1), s		2.0			26.0	2.0		13.9
Green Ext Time (p_c), s		1.8			0.0	3.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

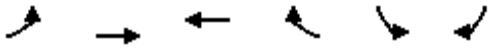
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	677	575	0	0	927	249	337	103	492	0	0	0
Future Volume (veh/h)	677	575	0	0	927	249	337	103	492	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1900	1845	1845			
Adj Flow Rate, veh/h	698	593	0	0	956	257	347	106	507			
Adj No. of Lanes	1	2	0	0	2	0	0	1	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	410	2167	0	0	1119	300	421	128	485			
Arrive On Green	0.23	0.82	0.00	0.00	0.54	0.53	0.31	0.31	0.31			
Sat Flow, veh/h	1757	3597	0	0	2827	733	1361	416	1568			
Grp Volume(v), veh/h	698	593	0	0	612	601	453	0	507			
Grp Sat Flow(s),veh/h/ln	1757	1752	0	0	1752	1715	1777	0	1568			
Q Serve(g_s), s	19.0	4.3	0.0	0.0	32.7	33.0	26.0	0.0	34.0			
Cycle Q Clear(g_c), s	19.0	4.3	0.0	0.0	32.7	33.0	26.0	0.0	34.0			
Prop In Lane	1.00		0.00	0.00		0.43	0.77		1.00			
Lane Grp Cap(c), veh/h	410	2167	0	0	717	702	549	0	485			
V/C Ratio(X)	1.70	0.27	0.00	0.00	0.85	0.86	0.82	0.00	1.05			
Avail Cap(c_a), veh/h	410	2167	0	0	717	702	549	0	485			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.4	4.1	0.0	0.0	22.3	22.6	35.2	0.0	38.0			
Incr Delay (d2), s/veh	321.4	0.2	0.0	0.0	12.3	12.8	10.1	0.0	53.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	88.2	3.6	0.0	0.0	24.9	25.0	20.4	0.0	39.4			
LnGrp Delay(d),s/veh	348.8	4.3	0.0	0.0	34.6	35.4	45.4	0.0	91.5			
LnGrp LOS	F	A			C	D	D		F			
Approach Vol, veh/h		1291			1213			960				
Approach Delay, s/veh		190.6			35.0			69.7				
Approach LOS		F			C			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	23.0	49.0		38.0		72.0		
Change Period (Y+Rc), s	3.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.0	44.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	21.0	35.0		36.0		6.3		
Green Ext Time (p_c), s	0.0	2.4		0.0		1.6		

Intersection Summary		
HCM 2010 Ctrl Delay		102.6
HCM 2010 LOS		F

Part 1
PM Peak Period



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	354	2718	2886	352	307	291
Future Volume (veh/h)	354	2718	2886	352	307	291
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	361	2773	2945	0	313	297
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	193	4086	3515	0	235	210
Arrive On Green	0.07	0.80	0.68	0.00	0.13	0.13
Sat Flow, veh/h	1792	5305	5474	0	1792	1599
Grp Volume(v), veh/h	361	2773	2945	0	313	297
Grp Sat Flow(s),veh/h/ln	1792	1712	1712	0	1792	1599
Q Serve(g_s), s	13.2	43.2	76.4	0.0	23.6	23.6
Cycle Q Clear(g_c), s	13.2	43.2	76.4	0.0	23.6	23.6
Prop In Lane	1.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	193	4086	3515	0	235	210
V/C Ratio(X)	1.87	0.68	0.84	0.00	1.33	1.42
Avail Cap(c_a), veh/h	193	4086	3515	0	235	210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	8.2	21.0	0.0	78.2	78.2
Incr Delay (d2), s/veh	409.3	0.9	2.6	0.0	175.8	213.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	56.9	28.1	46.8	0.0	41.7	57.5
LnGrp Delay(d),s/veh	474.6	9.1	23.6	0.0	254.0	291.4
LnGrp LOS	F	A	C		F	F
Approach Vol, veh/h		3134	2945		610	
Approach Delay, s/veh		62.7	23.6		272.2	
Approach LOS		E	C		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		150.0		30.0	20.0	130.0		
Change Period (Y+Rc), s		6.8		6.4	6.8	6.8		
Max Green Setting (Gmax), s		143.2		23.6	13.2	123.2		
Max Q Clear Time (g_c+I1), s		45.2		25.6	15.2	78.4		
Green Ext Time (p_c), s		57.4		0.0	0.0	36.6		

Intersection Summary	
HCM 2010 Ctrl Delay	64.6
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
203: S Miami Ave & SW 26th Rd

2045 No Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	1146	651	206	226	120	564	272	17	73	261	24
Future Volume (veh/h)	59	1146	651	206	226	120	564	272	17	73	261	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	62	1206	0	217	238	0	594	286	0	77	275	0
Adj No. of Lanes	1	3	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	392	1353	421	255	626	532	641	1682	0	581	1488	0
Arrive On Green	0.04	0.26	0.00	0.10	0.33	0.00	0.12	0.63	0.00	0.05	0.55	0.00
Sat Flow, veh/h	1792	5136	1599	1792	1881	1599	1792	3668	0	1792	3668	0
Grp Volume(v), veh/h	62	1206	0	217	238	0	594	286	0	77	275	0
Grp Sat Flow(s),veh/h/ln	1792	1712	1599	1792	1881	1599	1792	1787	0	1792	1787	0
Q Serve(g_s), s	3.3	29.4	0.0	11.1	12.6	0.0	12.0	4.4	0.0	3.2	5.0	0.0
Cycle Q Clear(g_c), s	3.3	29.4	0.0	11.1	12.6	0.0	12.0	4.4	0.0	3.2	5.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	392	1353	421	255	626	532	641	1682	0	581	1488	0
V/C Ratio(X)	0.16	0.89	0.00	0.85	0.38	0.00	0.93	0.17	0.00	0.13	0.18	0.00
Avail Cap(c_a), veh/h	464	1426	444	286	626	532	641	1682	0	678	1488	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	0.52	0.52	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.1	46.1	0.0	33.2	33.1	0.0	30.2	13.7	0.0	20.0	18.0	0.0
Incr Delay (d2), s/veh	0.2	7.1	0.0	11.1	0.1	0.0	19.8	0.2	0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	21.0	0.0	9.2	9.6	0.0	26.1	4.0	0.0	2.8	4.5	0.0
LnGrp Delay(d),s/veh	33.2	53.2	0.0	44.3	33.3	0.0	50.0	13.9	0.0	20.1	18.3	0.0
LnGrp LOS	C	D		D	C		D	B		C	B	
Approach Vol, veh/h		1268			455			880			352	
Approach Delay, s/veh		52.2			38.6			38.3			18.7	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	66.2	16.7	39.1	15.0	59.1	7.7	48.1
Change Period (Y+Rc), s	3.0	5.0	3.5	* 4.9	3.0	5.0	3.0	* 4.9
Max Green Setting (Gmax), s	12.0	50.0	15.5	* 36	12.0	50.0	10.0	* 42
Max Q Clear Time (g_c+I1), s	5.2	6.4	13.1	31.4	14.0	7.0	5.3	14.6
Green Ext Time (p_c), s	0.1	1.7	0.1	2.9	0.0	1.6	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	962	29	0	481	551	0	486	469	257	1282	45
Future Volume (veh/h)	258	962	29	0	481	551	0	486	469	257	1282	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	0	1881	1881	0	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	277	1034	0	0	517	0	0	523	504	276	1378	0
Adj No. of Lanes	1	3	1	0	2	1	0	2	1	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	1	1	0	1	1	1	1	1
Cap, veh/h	335	1840	573	0	616	275	0	1548	693	698	1925	0
Arrive On Green	0.14	0.36	0.00	0.00	0.17	0.00	0.00	0.58	0.58	0.08	0.72	0.00
Sat Flow, veh/h	1792	5136	1599	0	3668	1599	0	3668	1599	3476	3668	0
Grp Volume(v), veh/h	277	1034	0	0	517	0	0	523	504	276	1378	0
Grp Sat Flow(s),veh/h/ln	1792	1712	1599	0	1787	1599	0	1787	1599	1738	1787	0
Q Serve(g_s), s	16.0	21.0	0.0	0.0	18.2	0.0	0.0	10.0	29.9	5.6	29.2	0.0
Cycle Q Clear(g_c), s	16.0	21.0	0.0	0.0	18.2	0.0	0.0	10.0	29.9	5.6	29.2	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	335	1840	573	0	616	275	0	1548	693	698	1925	0
V/C Ratio(X)	0.83	0.56	0.00	0.00	0.84	0.00	0.00	0.34	0.73	0.40	0.72	0.00
Avail Cap(c_a), veh/h	401	2378	740	0	858	384	0	1548	693	760	1925	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	0.56	0.56	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	33.5	0.0	0.0	52.1	0.0	0.0	17.7	22.0	17.5	12.6	0.0
Incr Delay (d2), s/veh	5.8	0.1	0.0	0.0	4.8	0.0	0.0	0.6	6.6	0.1	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.0	13.9	0.0	0.0	14.4	0.0	0.0	8.7	20.4	4.7	21.1	0.0
LnGrp Delay(d),s/veh	42.7	33.6	0.0	0.0	56.9	0.0	0.0	18.3	28.5	17.6	15.0	0.0
LnGrp LOS	D	C			E			B	C	B	B	
Approach Vol, veh/h		1311			517			1027			1654	
Approach Delay, s/veh		35.5			56.9			23.3			15.4	
Approach LOS		D			E			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	13.7	62.9		53.4		76.6	24.2	29.2
Change Period (Y+Rc), s	6.0	6.6		* 6.8		6.6	6.0	* 6.8
Max Green Setting (Gmax), s	10.0	40.4		* 60		56.4	23.0	* 31
Max Q Clear Time (g_c+I1), s	7.6	31.9		23.0		31.2	18.0	20.2
Green Ext Time (p_c), s	0.1	1.3		7.4		4.6	0.2	2.2

Intersection Summary			
HCM 2010 Ctrl Delay		27.8	
HCM 2010 LOS		C	

Notes

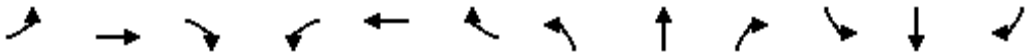
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	385	649	3059
v/c Ratio	0.43	0.77	1.12
Control Delay	31.4	29.8	86.7
Queue Delay	0.3	30.1	0.4
Total Delay	31.7	59.9	87.1
Queue Length 50th (ft)	187	148	~1078
Queue Length 95th (ft)	258	251	#1159
Internal Link Dist (ft)	411	125	410
Turn Bay Length (ft)			
Base Capacity (vph)	891	843	2741
Starvation Cap Reductn	0	221	0
Spillback Cap Reductn	156	0	480
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.52	1.04	1.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	332	37	39	584	0	0	0	0	365	2083	489
Future Volume (vph)	0	332	37	39	584	0	0	0	0	365	2083	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5						5.0	
Lane Util. Factor		*0.63			0.95						0.91	
Frt		0.98			1.00						0.98	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		2334			3563						4977	
Flt Permitted		1.00			0.82						0.99	
Satd. Flow (perm)		2334			2924						4977	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	346	39	41	608	0	0	0	0	380	2170	509
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	383	0	0	649	0	0	0	0	0	3036	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		8			4					2	2	
Permitted Phases				4								
Actuated Green, G (s)		49.5			37.5						71.0	
Effective Green, g (s)		49.5			37.5						71.0	
Actuated g/C Ratio		0.38			0.29						0.55	
Clearance Time (s)		4.5			4.5						5.0	
Vehicle Extension (s)		2.5			2.5						1.0	
Lane Grp Cap (vph)		888			843						2718	
v/s Ratio Prot		c0.16									c0.61	
v/s Ratio Perm					c0.22							
v/c Ratio		0.43			0.77						1.12	
Uniform Delay, d1		29.8			42.3						29.5	
Progression Factor		1.00			0.57						1.00	
Incremental Delay, d2		0.2			3.4						58.3	
Delay (s)		30.1			27.4						87.8	
Level of Service		C			C						F	
Approach Delay (s)		30.1			27.4			0.0			87.8	
Approach LOS		C			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	72.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	261	482	411	904	262	593
v/c Ratio	1.00	0.67	0.76	1.38	0.27	0.58
Control Delay	88.4	32.9	52.4	205.7	13.9	16.8
Queue Delay	35.1	12.8	9.3	0.0	0.0	0.0
Total Delay	123.4	45.8	61.7	205.7	14.0	16.8
Queue Length 50th (ft)	~151	393	316	~838	96	218
Queue Length 95th (ft)	m#202	m415	440	#1094	m119	m257
Internal Link Dist (ft)		125	258			245
Turn Bay Length (ft)						
Base Capacity (vph)	260	716	542	656	975	1018
Starvation Cap Reductn	74	214	0	0	0	0
Spillback Cap Reductn	0	0	102	0	80	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.40	0.96	0.93	1.38	0.29	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	443	0	0	378	832	241	507	39	0	0	0
Future Volume (vph)	240	443	0	0	378	832	241	507	39	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5	5.0	5.0				
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			1.00	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1787	1881			1881	1599	1787	1861				
Flt Permitted	0.24	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	447	1881			1881	1599	1787	1861				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	261	482	0	0	411	904	262	551	42	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	196	0	2	0	0	0	0
Lane Group Flow (vph)	261	482	0	0	411	708	262	591	0	0	0	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA			NA	Perm	Split	NA				
Protected Phases	3	8			4		6	6				
Permitted Phases	8					4						
Actuated Green, G (s)	50.5	49.5			37.5	37.5	71.0	71.0				
Effective Green, g (s)	50.5	49.5			37.5	37.5	71.0	71.0				
Actuated g/C Ratio	0.39	0.38			0.29	0.29	0.55	0.55				
Clearance Time (s)	3.5	4.5			4.5	4.5	5.0	5.0				
Vehicle Extension (s)	2.0	2.5			2.5	2.5	1.0	1.0				
Lane Grp Cap (vph)	261	716			542	461	975	1016				
v/s Ratio Prot	c0.07	0.26			0.22		0.15	c0.32				
v/s Ratio Perm	0.32					c0.44						
v/c Ratio	1.00	0.67			0.76	1.54	0.27	0.58				
Uniform Delay, d1	49.5	33.5			42.1	46.2	15.7	19.6				
Progression Factor	0.93	0.87			1.00	1.00	0.84	0.76				
Incremental Delay, d2	43.6	1.4			5.7	252.1	0.5	1.6				
Delay (s)	89.7	30.6			47.9	298.4	13.7	16.6				
Level of Service	F	C			D	F	B	B				
Approach Delay (s)		51.4			220.1			15.7			0.0	
Approach LOS		D			F			B			A	

Intersection Summary			
HCM 2000 Control Delay	117.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1055	502	0	0	0	0	168	385	0	0	0
Future Volume (veh/h)	136	1055	502	0	0	0	0	168	385	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	151	1172	558				0	187	428			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	205	1366	645				0	155	355			
Arrive On Green	0.61	0.61	0.61				0.00	0.31	0.31			
Sat Flow, veh/h	371	2963	1400				0	504	1155			
Grp Volume(v), veh/h	696	608	577				0	0	615			
Grp Sat Flow(s),veh/h/ln	1742	1543	1448				0	0	1659			
Q Serve(g_s), s	41.8	41.6	42.7				0.0	0.0	40.0			
Cycle Q Clear(g_c), s	42.8	41.6	42.7				0.0	0.0	40.0			
Prop In Lane	0.22		0.97				0.00		0.70			
Lane Grp Cap(c), veh/h	837	711	668				0	0	510			
V/C Ratio(X)	0.83	0.85	0.86				0.00	0.00	1.20			
Avail Cap(c_a), veh/h	1079	926	869				0	0	510			
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	21.8	21.6	21.8				0.0	0.0	45.0			
Incr Delay (d2), s/veh	9.4	12.5	14.0				0.0	0.0	109.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	30.2	27.2	26.6				0.0	0.0	60.9			
LnGrp Delay(d),s/veh	31.2	34.0	35.8				0.0	0.0	154.6			
LnGrp LOS	C	C	D						F			
Approach Vol, veh/h		1881						615				
Approach Delay, s/veh		33.6						154.6				
Approach LOS		C						F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				46.0		65.9		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				40.0		78.0		
Max Q Clear Time (g_c+I1), s				42.0		44.8		
Green Ext Time (p_c), s				0.0		15.1		

Intersection Summary	
HCM 2010 Ctrl Delay	63.4
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1848	77	0	0	0	0	0	0	1553	553	0
Future Volume (veh/h)	0	1848	77	0	0	0	0	0	0	1553	553	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900							1863	1863	0
Adj Flow Rate, veh/h	0	2031	85							1707	608	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.91	0.91	0.91							0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	2988	125							2161	759	0
Arrive On Green	0.00	0.66	0.66							0.41	0.41	0.00
Sat Flow, veh/h	0	6409	253							4896	1863	0
Grp Volume(v), veh/h	0	1504	612							1707	608	0
Grp Sat Flow(s),veh/h/ln	0	1490	1818							1632	1863	0
Q Serve(g_s), s	0.0	27.1	27.1							41.2	37.3	0.0
Cycle Q Clear(g_c), s	0.0	27.1	27.1							41.2	37.3	0.0
Prop In Lane	0.00		0.14							1.00		0.00
Lane Grp Cap(c), veh/h	0	2213	900							2161	759	0
V/C Ratio(X)	0.00	0.68	0.68							0.79	0.80	0.00
Avail Cap(c_a), veh/h	0	2213	900							2539	903	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	0.62	0.62							0.09	0.09	0.00
Uniform Delay (d), s/veh	0.0	15.8	15.8							35.0	33.9	0.0
Incr Delay (d2), s/veh	0.0	1.1	2.6							0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	15.4	18.7							20.6	21.3	0.0
LnGrp Delay(d),s/veh	0.0	16.9	18.4							35.2	34.3	0.0
LnGrp LOS		B	B							D	C	
Approach Vol, veh/h		2116									2315	
Approach Delay, s/veh		17.3									34.9	
Approach LOS		B									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		71.0		59.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 54		63.0				
Max Q Clear Time (g_c+I1), s		29.1		43.2				
Green Ext Time (p_c), s		12.9		9.7				

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	1562	117	0	0	0	0	557	266	23	888	0
Future Volume (veh/h)	301	1562	117	0	0	0	0	557	266	23	888	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	324	1680	0				0	599	286	25	955	0
Adj No. of Lanes	0	3	0				0	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	381	2124	0				0	516	438	55	516	0
Arrive On Green	0.64	0.64	0.00				0.00	0.28	0.28	0.28	0.28	0.00
Sat Flow, veh/h	792	4589	0				0	1863	1583	625	1863	0
Grp Volume(v), veh/h	746	1258	0				0	599	286	25	955	0
Grp Sat Flow(s),veh/h/ln	1823	1695	0				0	1863	1583	625	1863	0
Q Serve(g_s), s	42.1	34.4	0.0				0.0	36.0	20.7	0.0	36.0	0.0
Cycle Q Clear(g_c), s	42.1	34.4	0.0				0.0	36.0	20.7	36.0	36.0	0.0
Prop In Lane	0.43		0.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	876	1629	0				0	516	438	55	516	0
V/C Ratio(X)	0.85	0.77	0.00				0.00	1.16	0.65	0.45	1.85	0.00
Avail Cap(c_a), veh/h	1150	2138	0				0	516	438	55	516	0
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.8	18.4	0.0				0.0	47.0	41.5	65.0	47.0	0.0
Incr Delay (d2), s/veh	10.2	3.6	0.0				0.0	92.3	3.1	4.2	390.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	31.3	23.5	0.0				0.0	57.1	14.5	1.7	134.0	0.0
LnGrp Delay(d),s/veh	30.0	22.0	0.0				0.0	139.3	44.6	69.2	437.6	0.0
LnGrp LOS	C	C						F	D	E	F	
Approach Vol, veh/h		2004						885			980	
Approach Delay, s/veh		25.0						108.7			428.2	
Approach LOS		C						F			F	

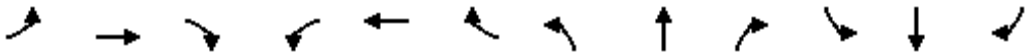
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				42.0		68.5		42.0
Change Period (Y+Rc), s				6.0		6.0		6.0
Max Green Setting (Gmax), s				36.0		82.0		36.0
Max Q Clear Time (g_c+I1), s				38.0		44.1		38.0
Green Ext Time (p_c), s				0.0		18.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	146.3
HCM 2010 LOS	F

Lane Group	EBT	EBR	NBT	SBT
Lane Group Flow (vph)	1583	244	540	850
v/c Ratio	0.77	0.33	0.28	1.03dl
Control Delay	45.2	20.0	23.2	55.1
Queue Delay	0.3	0.0	0.0	53.0
Total Delay	45.4	20.0	23.2	108.1
Queue Length 50th (ft)	481	113	94	375
Queue Length 95th (ft)	504	175	140	#512
Internal Link Dist (ft)	471		427	248
Turn Bay Length (ft)		155		
Base Capacity (vph)	2799	955	1952	1027
Starvation Cap Reductn	496	0	0	564
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.26	0.28	1.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	1231	237	0	0	0	0	234	290	365	460	0
Future Volume (vph)	305	1231	237	0	0	0	0	234	290	365	460	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.3	6.3					6.3			6.3	
Lane Util. Factor		0.91	1.00					0.91			0.95	
Frt		1.00	0.85					0.92			1.00	
Flt Protected		0.99	1.00					1.00			0.98	
Satd. Flow (prot)		4939	1553					4573			3396	
Flt Permitted		0.99	1.00					1.00			0.59	
Satd. Flow (perm)		4939	1553					4573			2046	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	314	1269	244	0	0	0	0	241	299	376	474	0
RTOR Reduction (vph)	0	0	101	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	1583	143	0	0	0	0	503	0	0	850	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	NA	Perm					NA		pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4		4							6		
Actuated Green, G (s)		54.0	54.0					54.4			63.4	
Effective Green, g (s)		54.0	54.0					54.4			63.4	
Actuated g/C Ratio		0.42	0.42					0.42			0.49	
Clearance Time (s)		6.3	6.3					6.3			6.3	
Vehicle Extension (s)		1.0	1.0					1.0			1.0	
Lane Grp Cap (vph)		2051	645					1913			1049	
v/s Ratio Prot								0.11			c0.03	
v/s Ratio Perm		0.32	0.09								c0.36	
v/c Ratio		0.77	0.22					0.26			1.03dl	
Uniform Delay, d1		32.7	24.5					24.7			28.2	
Progression Factor		1.33	2.82					1.00			1.77	
Incremental Delay, d2		1.3	0.0					0.3			2.6	
Delay (s)		44.8	68.9					25.0			52.5	
Level of Service		D	E					C			D	
Approach Delay (s)		48.0			0.0			25.0			52.5	
Approach LOS		D			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Lane Group	WBL	WBT	SBT	SWL	SWR
Lane Group Flow (vph)	419	1070	262	1775	844
v/c Ratio	0.73	0.94	0.89	1.24	1.34
Control Delay	37.7	54.3	89.8	147.3	194.7
Queue Delay	0.8	11.2	0.0	0.0	0.0
Total Delay	38.5	65.4	89.8	147.3	194.7
Queue Length 50th (ft)	263	435	116	~964	~1024
Queue Length 95th (ft)	401	#570	#197	#1101	#1295
Internal Link Dist (ft)		443	266	601	
Turn Bay Length (ft)					
Base Capacity (vph)	594	1178	293	1431	630
Starvation Cap Reductn	39	109	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	1.00	0.89	1.24	1.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBT	SBT	SBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	457	1003	237	20	912	1654
Future Volume (vph)	457	1003	237	20	912	1654
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2		7.0	7.0
Lane Util. Factor	0.91	0.91	0.95		0.97	0.91
Frt	1.00	1.00	0.99		0.93	0.85
Flt Protected	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)	1610	3383	3499		3270	1441
Flt Permitted	0.95	1.00	1.00		0.97	1.00
Satd. Flow (perm)	1610	3383	3499		3270	1441
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	466	1023	242	20	931	1688
RTOR Reduction (vph)	65	65	0	0	0	0
Lane Group Flow (vph)	354	1005	262	0	1775	844
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	4		3	
Permitted Phases	2					3
Actuated Green, G (s)	41.0	41.0	10.8		56.5	56.5
Effective Green, g (s)	41.0	41.0	10.8		56.5	56.5
Actuated g/C Ratio	0.32	0.32	0.08		0.44	0.44
Clearance Time (s)	6.5	6.5	7.2		7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5		3.0	3.0
Lane Grp Cap (vph)	511	1075	292		1432	631
v/s Ratio Prot			c0.07		0.54	
v/s Ratio Perm	0.22	0.30				c0.59
v/c Ratio	0.69	0.94	0.90		1.24	1.34
Uniform Delay, d1	38.5	42.7	58.6		36.2	36.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.5	15.7	27.7		113.9	162.5
Delay (s)	46.0	58.4	86.2		150.2	198.7
Level of Service	D	E	F		F	F
Approach Delay (s)		54.9	86.2		165.8	
Approach LOS		D	F		F	

Intersection Summary			
HCM 2000 Control Delay	123.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	129.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	120.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
307: SW 3rd Ave & SW 7th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	884	931	248	828	206	0	0	0	0
Future Volume (veh/h)	0	0	0	884	931	248	828	206	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0			
Adj Flow Rate, veh/h				911	960	256	854	212	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %				0	0	0	0	0	0			
Cap, veh/h				1004	1666	440	501	468	0			
Arrive On Green				0.88	0.88	0.88	0.25	0.25	0.00			
Sat Flow, veh/h				1434	2519	666	1810	1900	0			
Grp Volume(v), veh/h				911	596	620	854	212	0			
Grp Sat Flow(s),veh/h/ln				1434	1573	1612	1810	1900	0			
Q Serve(g_s), s				64.0	11.9	12.3	32.0	12.3	0.0			
Cycle Q Clear(g_c), s				64.0	11.9	12.3	32.0	12.3	0.0			
Prop In Lane				1.00		0.41	1.00		0.00			
Lane Grp Cap(c), veh/h				1004	1041	1066	501	468	0			
V/C Ratio(X)				0.91	0.57	0.58	1.71	0.45	0.00			
Avail Cap(c_a), veh/h				1004	1041	1066	501	468	0			
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)				0.42	0.42	0.42	0.09	0.09	0.00			
Uniform Delay (d), s/veh				6.5	3.4	3.4	50.8	41.6	0.0			
Incr Delay (d2), s/veh				6.4	1.0	1.0	318.1	0.0	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				30.6	7.5	8.0	106.7	7.7	0.0			
LnGrp Delay(d),s/veh				12.9	4.3	4.4	368.9	41.6	0.0			
LnGrp LOS				B	A	A	F	D				
Approach Vol, veh/h					2127			1066				
Approach Delay, s/veh					8.0			303.8				
Approach LOS					A			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		92.0		38.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		86.0		32.0				
Max Q Clear Time (g_c+I1), s		66.0		34.0				
Green Ext Time (p_c), s		6.3		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	106.8
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	82	1073	339	122	615	0	0	665	383
Future Volume (veh/h)	0	0	0	82	1073	339	122	615	0	0	665	383
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1881	1900	1881	1881	0	0	1881	1900
Adj Flow Rate, veh/h				91	1192	377	136	683	0	0	739	426
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	1	0	1	1	0	0	1	1
Cap, veh/h				148	2042	672	180	1294	0	0	573	329
Arrive On Green				0.73	0.73	0.73	0.05	0.24	0.00	0.00	0.26	0.26
Sat Flow, veh/h				271	3742	1231	1792	3668	0	0	2283	1257
Grp Volume(v), veh/h				627	523	510	136	683	0	0	603	562
Grp Sat Flow(s),veh/h/ln				1868	1712	1664	1792	1787	0	0	1787	1659
Q Serve(g_s), s				21.6	18.3	18.4	7.0	21.6	0.0	0.0	34.0	34.0
Cycle Q Clear(g_c), s				21.6	18.3	18.4	7.0	21.6	0.0	0.0	34.0	34.0
Prop In Lane				0.15		0.74	1.00		0.00	0.00		0.76
Lane Grp Cap(c), veh/h				1019	934	908	180	1294	0	0	467	434
V/C Ratio(X)				0.62	0.56	0.56	0.76	0.53	0.00	0.00	1.29	1.30
Avail Cap(c_a), veh/h				1019	934	908	414	1760	0	0	467	434
HCM Platoon Ratio				1.33	1.33	1.33	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.1	10.6	10.6	35.9	39.6	0.0	0.0	48.0	48.0
Incr Delay (d2), s/veh				2.8	2.4	2.5	2.4	0.1	0.0	0.0	145.7	149.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				17.2	14.0	13.7	6.3	16.0	0.0	0.0	64.2	60.4
LnGrp Delay(d),s/veh				13.8	13.0	13.1	38.2	39.7	0.0	0.0	193.7	197.2
LnGrp LOS				B	B	B	D	D			F	F
Approach Vol, veh/h					1660			819			1165	
Approach Delay, s/veh					13.4			39.5			195.4	
Approach LOS					B			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		77.0		53.0			13.0	40.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		54.0		64.0			26.0	34.0
Max Q Clear Time (g_c+I1), s		23.6		23.6			9.0	36.0
Green Ext Time (p_c), s		4.6		1.9			0.2	0.0

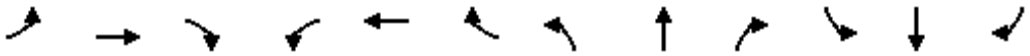
Intersection Summary	
HCM 2010 Ctrl Delay	77.4
HCM 2010 LOS	E

Lane Group	EBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	333	271	1385	523	1587
v/c Ratio	0.35	1.61	0.50	1.09	0.73
Control Delay	22.6	329.5	0.6	93.1	24.5
Queue Delay	0.0	0.0	0.0	6.7	11.1
Total Delay	22.6	329.5	0.6	99.7	35.6
Queue Length 50th (ft)	61	~208	0	~316	282
Queue Length 95th (ft)	103	#397	0	#601	326
Internal Link Dist (ft)	113				39
Turn Bay Length (ft)					
Base Capacity (vph)	1248	168	2787	479	2668
Starvation Cap Reductn	0	0	0	145	1074
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	1.61	0.50	1.57	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	212	71	0	0	0	230	0	1177	754	900	139
Future Volume (vph)	0	212	71	0	0	0	230	0	1177	754	900	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0					5.0		4.0	5.0	5.0	
Lane Util. Factor		0.95					1.00		0.88	0.86	0.86	
Frt		0.96					1.00		0.85	1.00	0.98	
Flt Protected		1.00					0.95		1.00	0.95	0.99	
Satd. Flow (prot)		3405					1770		2787	1522	4678	
Flt Permitted		1.00					0.95		1.00	0.95	0.99	
Satd. Flow (perm)		3405					1770		2787	1522	4678	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	249	84	0	0	0	271	0	1385	887	1059	164
RTOR Reduction (vph)	0	34	0	0	0	0	0	0	0	98	58	0
Lane Group Flow (vph)	0	299	0	0	0	0	271	0	1385	425	1529	0
Turn Type		NA					Prot		Free	custom	NA	
Protected Phases		8					1				2 7	
Permitted Phases									Free	2		
Actuated Green, G (s)		23.1					8.1		84.8	21.3	38.6	
Effective Green, g (s)		23.1					8.1		84.8	21.3	38.6	
Actuated g/C Ratio		0.27					0.10		1.00	0.25	0.46	
Clearance Time (s)		5.0					5.0			5.0		
Vehicle Extension (s)		2.5					2.0			1.0		
Lane Grp Cap (vph)		927					169		2787	382	2129	
v/s Ratio Prot		0.09					c0.15					
v/s Ratio Perm									c0.50	c0.28	0.33	
v/c Ratio		0.32					1.60		0.50	1.11	0.72	
Uniform Delay, d1		24.6					38.4		0.0	31.8	18.7	
Progression Factor		1.00					1.00		1.00	1.15	1.27	
Incremental Delay, d2		0.1					297.4		0.6	75.6	0.8	
Delay (s)		24.8					335.8		0.6	112.0	24.4	
Level of Service		C					F		A	F	C	
Approach Delay (s)		24.8			0.0			55.5			46.1	
Approach LOS		C			A			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

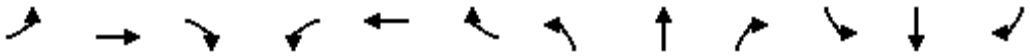
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑							↱	↰		
Traffic Volume (veh/h)	0	1405	0	0	0	0	0	0	13	17	0	0
Future Volume (veh/h)	0	1405	0	0	0	0	0	0	13	17	0	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	0				0	0	1881	1881	0	0
Adj Flow Rate, veh/h	0	1544	0				0	0	14	19	0	0
Adj No. of Lanes	0	3	0				0	0	1	1	0	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0				0	0	1	1	0	0
Cap, veh/h	0	0	0				0	0	0	53	0	0
Arrive On Green	0.00	0.00	0.00				0.00	0.00	0.00	0.03	0.00	0.00
Sat Flow, veh/h		0						0		1792	19	
Grp Volume(v), veh/h		0.0						0.0		19	45.9	
Grp Sat Flow(s),veh/h/ln										1792	D	
Q Serve(g_s), s										0.9		
Cycle Q Clear(g_c), s										0.9		
Prop In Lane										1.00		
Lane Grp Cap(c), veh/h										53		
V/C Ratio(X)										0.36		
Avail Cap(c_a), veh/h										199		
HCM Platoon Ratio										1.00		
Upstream Filter(I)										1.00		
Uniform Delay (d), s/veh										42.8		
Incr Delay (d2), s/veh										3.1		
Initial Q Delay(d3),s/veh										0.0		
%ile BackOfQ(95%),veh/ln										0.9		
LnGrp Delay(d),s/veh										45.9		
LnGrp LOS										D		
Approach Vol, veh/h												
Approach Delay, s/veh												
Approach LOS												

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3					
Phs Duration (G+Y+Rc), s			7.6					
Change Period (Y+Rc), s			5.0					
Max Green Setting (Gmax), s			10.0					
Max Q Clear Time (g_c+I1), s			2.9					
Green Ext Time (p_c), s			0.0					

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D

Lane Group	EBT	EBR	SBT
Lane Group Flow (vph)	936	412	1352
v/c Ratio	0.56	0.54	0.68
Control Delay	18.9	18.6	26.5
Queue Delay	0.0	0.0	0.2
Total Delay	18.9	18.6	26.8
Queue Length 50th (ft)	206	157	254
Queue Length 95th (ft)	317	303	261
Internal Link Dist (ft)	476		1
Turn Bay Length (ft)		80	
Base Capacity (vph)	1683	766	3003
Starvation Cap Reductn	0	0	805
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.56	0.54	0.62

Intersection Summary

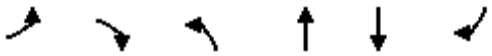


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	649	592	0	0	0	0	0	0	105	1139	0
Future Volume (vph)	0	649	592	0	0	0	0	0	0	105	1139	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.6								5.5	
Lane Util. Factor		0.91	0.91								0.91	
Frt		0.96	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		3297	1455								5114	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		3297	1455								5114	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	705	643	0	0	0	0	0	0	114	1238	0
RTOR Reduction (vph)	0	21	32	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	915	380	0	0	0	0	0	0	0	1335	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA	Perm							Perm	NA	
Protected Phases		6									8	
Permitted Phases			6							8		
Actuated Green, G (s)		50.4	50.4								38.5	
Effective Green, g (s)		50.4	50.4								38.5	
Actuated g/C Ratio		0.50	0.50								0.38	
Clearance Time (s)		5.6	5.6								5.5	
Vehicle Extension (s)		1.0	1.0								2.5	
Lane Grp Cap (vph)		1661	733								1968	
v/s Ratio Prot		c0.28										
v/s Ratio Perm			0.26								0.26	
v/c Ratio		0.55	0.52								0.68	
Uniform Delay, d1		17.0	16.6								25.6	
Progression Factor		1.00	1.00								1.00	
Incremental Delay, d2		1.3	2.6								0.9	
Delay (s)		18.4	19.3								26.4	
Level of Service		B	B								C	
Approach Delay (s)		18.6			0.0			0.0			26.4	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.1
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	SBT
Lane Group Flow (vph)	1546	360
v/c Ratio	0.83	0.28
Control Delay	14.7	28.3
Queue Delay	49.2	0.0
Total Delay	63.9	28.3
Queue Length 50th (ft)	281	56
Queue Length 95th (ft)	381	101
Internal Link Dist (ft)		177
Turn Bay Length (ft)		
Base Capacity (vph)	2063	1299
Starvation Cap Reductn	0	0
Spillback Cap Reductn	984	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.43	0.28

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1453	0	0	338	0
Future Volume (vph)	0	1453	0	0	338	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	
Lane Util. Factor		0.88			0.91	
Frt		0.85			1.00	
Flt Protected		1.00			1.00	
Satd. Flow (prot)		2842			5187	
Flt Permitted		1.00			1.00	
Satd. Flow (perm)		2842			5187	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1546	0	0	360	0
RTOR Reduction (vph)	0	73	0	0	0	0
Lane Group Flow (vph)	0	1473	0	0	360	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		custom			NA	
Protected Phases		1 4			2	
Permitted Phases						
Actuated Green, G (s)		53.5			21.3	
Effective Green, g (s)		53.5			21.3	
Actuated g/C Ratio		0.63			0.25	
Clearance Time (s)					5.0	
Vehicle Extension (s)					1.0	
Lane Grp Cap (vph)		1793			1302	
v/s Ratio Prot		c0.52			c0.07	
v/s Ratio Perm						
v/c Ratio		0.82			0.28	
Uniform Delay, d1		12.0			25.5	
Progression Factor		1.00			1.00	
Incremental Delay, d2		3.0			0.0	
Delay (s)		15.0			25.6	
Level of Service		B			C	
Approach Delay (s)	15.0			0.0	25.6	
Approach LOS	B			A	C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	84.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	127	1435	0	0	0	0	0	206	69
Future Volume (veh/h)	0	0	0	127	1435	0	0	0	0	0	206	69
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1900	0				0	1845	1845
Adj Flow Rate, veh/h				146	1649	0				0	237	0
Adj No. of Lanes				0	2	0				0	2	1
Peak Hour Factor				0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %				0	0	0				0	3	3
Cap, veh/h				186	1779	0				0	1134	507
Arrive On Green				0.56	0.56	0.00				0.00	0.43	0.00
Sat Flow, veh/h				261	3284	0				0	3597	1568
Grp Volume(v), veh/h				959	836	0				0	237	0
Grp Sat Flow(s),veh/h/ln				1815	1643	0				0	1752	1568
Q Serve(g_s), s				46.7	45.9	0.0				0.0	4.2	0.0
Cycle Q Clear(g_c), s				49.7	45.9	0.0				0.0	4.2	0.0
Prop In Lane				0.15		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				1052	914	0				0	1134	507
V/C Ratio(X)				0.91	0.91	0.00				0.00	0.21	0.00
Avail Cap(c_a), veh/h				1149	1002	0				0	1134	507
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.33	1.33
Upstream Filter(I)				0.09	0.09	0.00				0.00	1.00	0.00
Uniform Delay (d), s/veh				20.8	20.0	0.0				0.0	20.5	0.0
Incr Delay (d2), s/veh				1.1	1.3	0.0				0.0	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				27.6	23.2	0.0				0.0	3.8	0.0
LnGrp Delay(d),s/veh				21.9	21.3	0.0				0.0	20.9	0.0
LnGrp LOS				C	C						C	
Approach Vol, veh/h					1795						237	
Approach Delay, s/veh					21.6						20.9	
Approach LOS					C						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		38.4		61.6				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		27.0		61.0				
Max Q Clear Time (g_c+I1), s		6.2		51.7				
Green Ext Time (p_c), s		0.6		3.9				

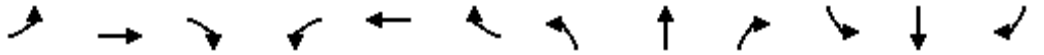
Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	423	472	1154	598	0	0	0	0
Future Volume (veh/h)	0	0	0	0	423	472	1154	598	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1900	1900	1900	1900	0			
Adj Flow Rate, veh/h				0	549	613	1326	1272	0			
Adj No. of Lanes				0	2	0	1	2	0			
Peak Hour Factor				0.77	0.77	0.77	0.87	0.47	0.77			
Percent Heavy Veh, %				0	0	0	0	0	0			
Cap, veh/h				0	737	660	778	1408	0			
Arrive On Green				0.00	0.41	0.41	0.52	0.52	0.00			
Sat Flow, veh/h				0	1900	1615	1810	3705	0			
Grp Volume(v), veh/h				0	549	613	1326	1272	0			
Grp Sat Flow(s),veh/h/ln				0	1805	1615	1810	1805	0			
Q Serve(g_s), s				0.0	25.9	36.2	39.0	31.9	0.0			
Cycle Q Clear(g_c), s				0.0	25.9	36.2	39.0	31.9	0.0			
Prop In Lane				0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h				0	737	660	778	1408	0			
V/C Ratio(X)				0.00	0.74	0.93	1.70	0.90	0.00			
Avail Cap(c_a), veh/h				0	884	791	778	1408	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00			
Upstream Filter(I)				0.00	0.75	0.75	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	25.1	28.2	25.9	22.4	0.0			
Incr Delay (d2), s/veh				0.0	1.6	11.5	322.8	9.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				0.0	18.3	24.2	163.9	24.6	0.0			
LnGrp Delay(d),s/veh				0.0	26.7	39.7	348.6	32.1	0.0			
LnGrp LOS					C	D	F	C				
Approach Vol, veh/h					1162			2598				
Approach Delay, s/veh					33.6			193.7				
Approach LOS					C			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				46.8		45.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				49.0		39.0		
Max Q Clear Time (g_c+I1), s				38.2		41.0		
Green Ext Time (p_c), s				2.7		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	144.2
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
409: SE 2nd Ave & SE 2nd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1125	479	0	0	0	0	0	711	341
Future Volume (veh/h)	0	0	0	1125	479	0	0	0	0	0	711	341
Number				5	2	12				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	0				0	1863	1863
Adj Flow Rate, veh/h				1236	526	0				0	781	375
Adj No. of Lanes				2	1	0				0	2	1
Peak Hour Factor				0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				2093	1099	0				0	1026	459
Arrive On Green				0.78	0.78	0.00				0.00	0.29	0.29
Sat Flow, veh/h				3548	1863	0				0	3632	1583
Grp Volume(v), veh/h				1236	526	0				0	781	375
Grp Sat Flow(s),veh/h/ln				1774	1863	0				0	1770	1583
Q Serve(g_s), s				14.0	9.7	0.0				0.0	20.1	22.0
Cycle Q Clear(g_c), s				14.0	9.7	0.0				0.0	20.1	22.0
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				2093	1099	0				0	1026	459
V/C Ratio(X)				0.59	0.48	0.00				0.00	0.76	0.82
Avail Cap(c_a), veh/h				2093	1099	0				0	1026	459
HCM Platoon Ratio				1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				5.9	5.5	0.0				0.0	32.3	33.0
Incr Delay (d2), s/veh				1.2	1.5	0.0				0.0	5.3	14.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.4	9.1	0.0				0.0	15.8	17.0
LnGrp Delay(d),s/veh				7.1	7.0	0.0				0.0	37.7	47.8
LnGrp LOS				A	A						D	D
Approach Vol, veh/h					1762						1156	
Approach Delay, s/veh					7.1						41.0	
Approach LOS					A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						8
Phs Duration (G+Y+Rc), s		65.0						35.0
Change Period (Y+Rc), s		6.0						6.0
Max Green Setting (Gmax), s		59.0						29.0
Max Q Clear Time (g_c+I1), s		16.0						24.0
Green Ext Time (p_c), s		2.2						2.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
501: NW 3rd Ct/SB On-Ramp/NW 3rd Ct & NW 2nd St

2045 No Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	58	200	0	0	0	0	0	28	1715	0
Future Volume (veh/h)	0	30	58	200	0	0	0	0	0	28	1715	0
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	0	0				1881	1881	0
Adj Flow Rate, veh/h	0	34	66	227	0	0				32	1949	0
Adj No. of Lanes	0	1	1	1	0	0				1	3	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	1	1	1	0	0				1	1	0
Cap, veh/h	0	132	112	263	0	0				1158	3318	0
Arrive On Green	0.00	0.07	0.07	0.15	0.00	0.00				0.21	0.21	0.00
Sat Flow, veh/h	0	1881	1599	1792	227					1792	5305	0
Grp Volume(v), veh/h	0	34	66	227	47.8					32	1949	0
Grp Sat Flow(s),veh/h/ln	0	1881	1599	1792	D					1792	1712	0
Q Serve(g_s), s	0.0	1.7	4.0	12.4						1.4	34.1	0.0
Cycle Q Clear(g_c), s	0.0	1.7	4.0	12.4						1.4	34.1	0.0
Prop In Lane	0.00		1.00	1.00						1.00		0.00
Lane Grp Cap(c), veh/h	0	132	112	263						1158	3318	0
V/C Ratio(X)	0.00	0.26	0.59	0.86						0.03	0.59	0.00
Avail Cap(c_a), veh/h	0	325	277	417						1158	3318	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00						0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.67						0.62	0.62	0.00
Uniform Delay (d), s/veh	0.0	44.0	45.1	41.7						14.5	27.4	0.0
Incr Delay (d2), s/veh	0.0	0.8	3.6	6.2						0.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0						0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.6	3.4	10.0						1.3	21.6	0.0
LnGrp Delay(d),s/veh	0.0	44.8	48.7	47.8						14.5	27.8	0.0
LnGrp LOS		D	D	D						B	C	
Approach Vol, veh/h		100									1981	
Approach Delay, s/veh		47.4									27.6	
Approach LOS		D									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2					7	8
Phs Duration (G+Y+Rc), s		68.9					19.4	11.7
Change Period (Y+Rc), s		* 4.3					* 4.7	* 4.7
Max Green Setting (Gmax), s		* 46					* 23	* 17
Max Q Clear Time (g_c+I1), s		3.4					14.4	6.0
Green Ext Time (p_c), s		0.1					0.3	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	30.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBT	WBR	NBT	NWL	NWR
Lane Group Flow (vph)	36	30	238	219	989	124	123
v/c Ratio	0.40	0.10	0.82	0.52	0.75	0.42	0.36
Control Delay	27.8	13.7	56.2	9.4	24.8	41.8	18.3
Queue Delay	0.2	0.0	63.0	0.3	30.3	0.0	0.0
Total Delay	28.1	13.7	119.2	9.6	55.2	41.8	18.3
Queue Length 50th (ft)	12	10	135	0	354	69	24
Queue Length 95th (ft)	26	22	196	53	467	123	73
Internal Link Dist (ft)		109	427		348	296	
Turn Bay Length (ft)				90			
Base Capacity (vph)	126	419	398	508	1319	509	530
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	6	0	192	51	378	0	13
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.07	1.16	0.48	1.05	0.24	0.24

Intersection Summary

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NWL	NWR	NWR2
Lane Configurations										
Traffic Volume (vph)	31	26	120	273	18	738	95	15	181	17
Future Volume (vph)	31	26	120	273	18	738	95	15	181	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7		4.6		4.7	4.7	
Lane Util. Factor	1.00	1.00	0.95	0.95		*0.70		1.00	0.95	
Frt	1.00	1.00	0.94	0.85		0.98		0.87	0.85	
Flt Protected	0.95	1.00	1.00	1.00		1.00		0.99	1.00	
Satd. Flow (prot)	1787	1881	1677	1519		2587		1627	1519	
Flt Permitted	0.30	1.00	1.00	1.00		1.00		0.99	1.00	
Satd. Flow (perm)	567	1881	1677	1519		2587		1627	1519	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	36	30	140	317	21	858	110	17	210	20
RTOR Reduction (vph)	0	0	27	184	0	0	0	0	65	0
Lane Group Flow (vph)	36	30	211	35	0	989	0	124	58	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA	NA	Perm	Perm	NA		Prot	Perm	
Protected Phases		8	4			5		6		
Permitted Phases	8			4	5				6	
Actuated Green, G (s)	15.8	15.8	15.8	15.8		51.0		18.2	18.2	
Effective Green, g (s)	15.8	15.8	15.8	15.8		51.0		18.2	18.2	
Actuated g/C Ratio	0.16	0.16	0.16	0.16		0.51		0.18	0.18	
Clearance Time (s)	5.7	5.7	5.7	5.7		4.6		4.7	4.7	
Vehicle Extension (s)	1.0	1.0	1.0	1.0		1.0		1.0	1.0	
Lane Grp Cap (vph)	89	297	264	240		1319		296	276	
v/s Ratio Prot		0.02	c0.13					c0.08		
v/s Ratio Perm	0.06			0.02		0.38			0.04	
v/c Ratio	0.40	0.10	0.80	0.14		0.75		0.42	0.21	
Uniform Delay, d1	37.9	36.0	40.6	36.3		19.4		36.2	34.8	
Progression Factor	0.40	0.39	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.1	14.5	0.1		2.1		4.3	1.7	
Delay (s)	16.4	14.1	55.1	36.4		21.5		40.5	36.5	
Level of Service	B	B	E	D		C		D	D	
Approach Delay (s)		15.3	46.1			21.5		38.5		
Approach LOS		B	D			C		D		

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	238	74	0	0	0	0	237	1529	12
Future Volume (veh/h)	0	0	0	238	74	0	0	0	0	237	1529	12
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h				170	205	0				258	1662	13
Adj No. of Lanes				1	1	0				1	3	0
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				2	2	0				2	2	2
Cap, veh/h				674	708	0				1000	2722	21
Arrive On Green				0.38	0.38	0.00				0.70	0.70	0.70
Sat Flow, veh/h				1774	1863	0				1774	5205	41
Grp Volume(v), veh/h				170	205	0				258	1082	593
Grp Sat Flow(s),veh/h/ln				1774	1863	0				1774	1695	1856
Q Serve(g_s), s				6.6	7.7	0.0				5.5	16.9	16.9
Cycle Q Clear(g_c), s				6.6	7.7	0.0				5.5	16.9	16.9
Prop In Lane				1.00		0.00				1.00		0.02
Lane Grp Cap(c), veh/h				674	708	0				1000	1773	970
V/C Ratio(X)				0.25	0.29	0.00				0.26	0.61	0.61
Avail Cap(c_a), veh/h				674	708	0				1000	1773	970
HCM Platoon Ratio				1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)				0.55	0.55	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh				21.3	21.6	0.0				8.1	9.8	9.8
Incr Delay (d2), s/veh				0.5	0.6	0.0				0.6	1.6	2.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				5.5	6.5	0.0				5.0	12.7	14.1
LnGrp Delay(d),s/veh				21.8	22.2	0.0				8.7	11.4	12.7
LnGrp LOS				C	C					A	B	B
Approach Vol, veh/h					375						1933	
Approach Delay, s/veh					22.0						11.4	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		57.0		43.0				
Change Period (Y+Rc), s		* 4.7		5.0				
Max Green Setting (Gmax), s		* 52		38.0				
Max Q Clear Time (g_c+I1), s		18.9		9.7				
Green Ext Time (p_c), s		5.2		1.3				

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	171	0	0	257	366	62	1108	53	0	0	0
Future Volume (veh/h)	83	171	0	0	257	366	62	1108	53	0	0	0
Number	7	4	14	3	8	18	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1900	1900	1881	1881			
Adj Flow Rate, veh/h	91	188	0	0	282	402	68	1218	58			
Adj No. of Lanes	1	1	0	0	2	0	0	2	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	180	673	0	0	639	572	91	1707	851			
Arrive On Green	0.12	0.12	0.00	0.00	0.36	0.36	0.71	0.71	0.71			
Sat Flow, veh/h	762	1881	0	0	1881	1599	171	3206	1599			
Grp Volume(v), veh/h	91	188	0	0	282	402	743	543	58			
Grp Sat Flow(s),veh/h/ln	762	1881	0	0	1787	1599	1873	1505	1599			
Q Serve(g_s), s	11.9	9.1	0.0	0.0	12.0	21.6	24.5	20.3	1.1			
Cycle Q Clear(g_c), s	33.4	9.1	0.0	0.0	12.0	21.6	24.5	20.3	1.1			
Prop In Lane	1.00		0.00	0.00		1.00	0.09		1.00			
Lane Grp Cap(c), veh/h	180	673	0	0	639	572	997	801	851			
V/C Ratio(X)	0.51	0.28	0.00	0.00	0.44	0.70	0.75	0.68	0.07			
Avail Cap(c_a), veh/h	201	724	0	0	688	616	997	801	851			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.95	0.95	0.00	0.00	1.00	1.00	0.69	0.69	0.69			
Uniform Delay (d), s/veh	53.8	32.3	0.0	0.0	24.5	27.6	10.4	9.8	7.0			
Incr Delay (d2), s/veh	0.8	0.1	0.0	0.0	0.4	3.0	3.5	3.2	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	4.6	8.3	0.0	0.0	10.0	15.2	18.4	13.1	0.9			
LnGrp Delay(d),s/veh	54.6	32.4	0.0	0.0	24.9	30.6	13.9	13.0	7.1			
LnGrp LOS	D	C			C	C	B	B	A			
Approach Vol, veh/h		279			684			1344				
Approach Delay, s/veh		39.6			28.2			13.3				
Approach LOS		D			C			B				

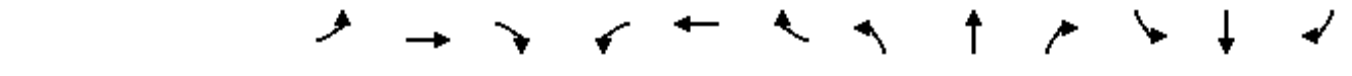
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				41.3		58.7		41.3
Change Period (Y+Rc), s				5.5		5.5		5.5
Max Green Setting (Gmax), s				38.5		50.5		38.5
Max Q Clear Time (g_c+I1), s				35.4		26.5		23.6
Green Ext Time (p_c), s				0.3		3.3		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	214	82	51	140	0	0	0	0	345	1168	165
Future Volume (veh/h)	0	214	82	51	140	0	0	0	0	345	1168	165
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	230	88	55	151	0				371	1256	177
Adj No. of Lanes	0	1	0	1	1	0				0	4	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	257	98	99	373	0				907	3339	475
Arrive On Green	0.00	0.20	0.20	0.40	0.40	0.00				0.70	0.70	0.70
Sat Flow, veh/h	0	1285	491	1057	1863	0				1295	4770	679
Grp Volume(v), veh/h	0	0	318	55	151	0				515	835	454
Grp Sat Flow(s),veh/h/ln	0	0	1776	1057	1863	0				1798	1602	1743
Q Serve(g_s), s	0.0	0.0	17.4	2.6	5.8	0.0				12.0	10.6	10.6
Cycle Q Clear(g_c), s	0.0	0.0	17.4	20.0	5.8	0.0				12.0	10.6	10.6
Prop In Lane	0.00		0.28	1.00		0.00				0.72		0.39
Lane Grp Cap(c), veh/h	0	0	355	99	373	0				1259	2243	1220
V/C Ratio(X)	0.00	0.00	0.90	0.56	0.41	0.00				0.41	0.37	0.37
Avail Cap(c_a), veh/h	0	0	355	99	373	0				1259	2243	1220
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.41	0.41	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	39.0	39.4	25.7	0.0				6.3	6.1	6.1
Incr Delay (d2), s/veh	0.0	0.0	23.7	2.4	0.2	0.0				1.0	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	16.3	2.8	4.8	0.0				10.3	8.4	9.1
LnGrp Delay(d),s/veh	0.0	0.0	62.7	41.7	26.0	0.0				7.3	6.6	7.0
LnGrp LOS			E	D	C					A	A	A
Approach Vol, veh/h		318			206						1804	
Approach Delay, s/veh		62.7			30.2						6.9	
Approach LOS		E			C						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		75.0		25.0				25.0
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		70.0		20.0				20.0
Max Q Clear Time (g_c+I1), s		14.0		22.0				19.4
Green Ext Time (p_c), s		5.6		0.0				0.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	364	0	0	178	353	25	1342	87	0	0	0
Future Volume (veh/h)	191	364	0	0	178	353	25	1342	87	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1845	1845	1845			
Adj Flow Rate, veh/h	222	423	0	0	207	410	29	1560	101			
Adj No. of Lanes	1	1	0	0	1	0	1	2	1			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	105	738	0	0	222	439	878	1752	784			
Arrive On Green	0.40	0.40	0.00	0.00	0.40	0.40	0.67	0.67	0.67			
Sat Flow, veh/h	795	1845	0	0	554	1097	1757	3505	1568			
Grp Volume(v), veh/h	222	423	0	0	0	617	29	1560	101			
Grp Sat Flow(s),veh/h/ln	795	1845	0	0	0	1651	1757	1752	1568			
Q Serve(g_s), s	4.2	17.9	0.0	0.0	0.0	35.8	0.6	36.5	2.4			
Cycle Q Clear(g_c), s	40.0	17.9	0.0	0.0	0.0	35.8	0.6	36.5	2.4			
Prop In Lane	1.00		0.00	0.00		0.66	1.00		1.00			
Lane Grp Cap(c), veh/h	105	738	0	0	0	660	878	1752	784			
V/C Ratio(X)	2.11	0.57	0.00	0.00	0.00	0.93	0.03	0.89	0.13			
Avail Cap(c_a), veh/h	105	738	0	0	0	660	878	1752	784			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.57	0.57	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	49.3	23.4	0.0	0.0	0.0	28.7	8.5	14.5	8.8			
Incr Delay (d2), s/veh	515.9	0.5	0.0	0.0	0.0	20.4	0.1	7.3	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	32.4	12.9	0.0	0.0	0.0	27.4	0.5	26.3	2.0			
LnGrp Delay(d),s/veh	565.2	23.9	0.0	0.0	0.0	49.1	8.5	21.8	9.1			
LnGrp LOS	F	C				D	A	C	A			
Approach Vol, veh/h		645			617			1690				
Approach Delay, s/veh		210.2			49.1			20.8				
Approach LOS		F			D			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		55.0		45.0				45.0
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		50.0		40.0				40.0
Max Q Clear Time (g_c+I1), s		38.5		37.8				42.0
Green Ext Time (p_c), s		6.6		0.8				0.0

Intersection Summary	
HCM 2010 Ctrl Delay	68.1
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	789	59	224	819	168	112	1103	229	205	938	180
Future Volume (veh/h)	225	789	59	224	819	168	112	1103	229	205	938	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	227	797	60	226	827	170	113	1114	231	207	947	182
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	667	50	146	585	120	277	1355	280	247	1437	276
Arrive On Green	0.05	0.20	0.20	0.05	0.20	0.20	0.05	0.46	0.46	0.07	0.48	0.48
Sat Flow, veh/h	1774	3337	251	1774	2925	601	1774	2923	603	1774	2963	569
Grp Volume(v), veh/h	227	423	434	226	500	497	113	672	673	207	565	564
Grp Sat Flow(s),veh/h/ln	1774	1770	1818	1774	1770	1757	1774	1770	1756	1774	1770	1762
Q Serve(g_s), s	5.0	22.0	22.0	5.0	22.0	22.0	3.6	36.1	36.6	6.7	26.6	26.6
Cycle Q Clear(g_c), s	5.0	22.0	22.0	5.0	22.0	22.0	3.6	36.1	36.6	6.7	26.6	26.6
Prop In Lane	1.00		0.14	1.00		0.34	1.00		0.34	1.00		0.32
Lane Grp Cap(c), veh/h	146	354	364	146	354	351	277	820	814	247	858	855
V/C Ratio(X)	1.55	1.19	1.19	1.55	1.41	1.41	0.41	0.82	0.83	0.84	0.66	0.66
Avail Cap(c_a), veh/h	146	354	364	146	354	351	315	820	814	247	858	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	44.0	44.0	41.5	44.0	44.0	17.3	25.5	25.6	23.4	21.4	21.5
Incr Delay (d2), s/veh	280.0	111.8	111.4	272.3	199.6	199.7	0.4	9.0	9.4	20.5	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	26.7	39.1	40.1	26.2	54.6	54.2	3.2	26.9	27.2	8.2	19.9	19.9
LnGrp Delay(d),s/veh	321.5	155.8	155.4	313.8	243.6	243.7	17.6	34.5	35.0	43.9	25.4	25.4
LnGrp LOS	F	F	F	F	F	F	B	C	D	D	C	C
Approach Vol, veh/h		1084			1223			1458			1336	
Approach Delay, s/veh		190.3			256.6			33.4			28.3	
Approach LOS		F			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	57.0	11.0	28.0	11.7	59.3	11.0	28.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	8.0	51.0	5.0	22.0	8.0	51.0	5.0	22.0
Max Q Clear Time (g_c+I1), s	8.7	38.6	7.0	24.0	5.6	28.6	7.0	24.0
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	2.8	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay		118.9	
HCM 2010 LOS		F	

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
702: NW 6th Ave/SB On-Ramp/SB Off-Ramp & NW 62nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	934	361	922	1058	0	0	0	0	367	539	204
Future Volume (veh/h)	0	934	361	922	1058	0	0	0	0	367	539	204
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1827	1900	1827	1827	0				1827	1827	1900
Adj Flow Rate, veh/h	0	994	384	981	1126	0				390	573	217
Adj No. of Lanes	0	2	0	1	2	0				1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	4	4	4	4	0				4	4	4
Cap, veh/h	0	1054	403	246	2049	0				570	414	157
Arrive On Green	0.00	0.47	0.47	0.10	0.59	0.00				0.33	0.33	0.33
Sat Flow, veh/h	0	2639	863	1740	3563	0				1740	1264	479
Grp Volume(v), veh/h	0	633	745	981	1126	0				390	0	790
Grp Sat Flow(s),veh/h/ln	0	1443	1675	1740	1736	0				1740	0	1742
Q Serve(g_s), s	0.0	50.8	52.1	12.0	24.0	0.0				23.7	0.0	40.0
Cycle Q Clear(g_c), s	0.0	50.8	52.1	12.0	24.0	0.0				23.7	0.0	40.0
Prop In Lane	0.00		0.52	1.00		0.00				1.00		0.27
Lane Grp Cap(c), veh/h	0	674	782	246	2049	0				570	0	571
V/C Ratio(X)	0.00	0.94	0.95	3.99	0.55	0.00				0.68	0.00	1.38
Avail Cap(c_a), veh/h	0	745	865	246	2219	0				570	0	571
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.8	31.2	37.6	15.2	0.0				35.5	0.0	41.0
Incr Delay (d2), s/veh	0.0	17.9	18.4	1357.2	0.1	0.0				3.1	0.0	183.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	31.3	36.7	181.3	17.0	0.0				17.5	0.0	86.8
LnGrp Delay(d),s/veh	0.0	48.7	49.6	1394.8	15.3	0.0				38.7	0.0	224.1
LnGrp LOS		D	D	F	B					D		F
Approach Vol, veh/h		1378			2107						1180	
Approach Delay, s/veh		49.2			657.6						162.8	
Approach LOS		D			F						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		77.0			15.0	62.0		45.0
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		78.0			12.0	63.0		40.0
Max Q Clear Time (g_c+I1), s		26.0			14.0	54.1		42.0
Green Ext Time (p_c), s		3.6			0.0	2.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	352.7
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
703: NW 6th Ave/NB Off-Ramp/NW 5th Ct/NB On-Ramp & NW 62nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	314	1007	0	0	1065	189	846	509	746	0	0	0
Future Volume (veh/h)	314	1007	0	0	1065	189	846	509	746	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1900	1845	1900			
Adj Flow Rate, veh/h	320	1028	0	0	1087	193	863	519	761			
Adj No. of Lanes	1	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	3	3	0	0	3	3	0	3	0			
Cap, veh/h	277	2159	0	0	1310	232	415	251	369			
Arrive On Green	0.11	0.82	0.00	0.00	0.66	0.66	0.30	0.30	0.30			
Sat Flow, veh/h	1757	3597	0	0	3139	468	1366	825	1215			
Grp Volume(v), veh/h	320	1028	0	0	553	727	1122	0	1021			
Grp Sat Flow(s),veh/h/ln	1757	1752	0	0	1347	1762	1776	0	1630			
Q Serve(g_s), s	10.0	10.9	0.0	0.0	38.5	38.9	38.0	0.0	38.0			
Cycle Q Clear(g_c), s	10.0	10.9	0.0	0.0	38.5	38.9	38.0	0.0	38.0			
Prop In Lane	1.00		0.00	0.00		0.27	0.77		0.75			
Lane Grp Cap(c), veh/h	277	2159	0	0	668	874	540	0	496			
V/C Ratio(X)	1.16	0.48	0.00	0.00	0.83	0.83	2.08	0.00	2.06			
Avail Cap(c_a), veh/h	277	2159	0	0	668	874	540	0	496			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.24	0.24	0.00	0.00	0.82	0.82	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.0	5.3	0.0	0.0	17.3	17.3	43.5	0.0	43.5			
Incr Delay (d2), s/veh	80.1	0.2	0.0	0.0	9.5	7.6	491.3	0.0	484.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	28.2	7.0	0.0	0.0	21.8	27.1	166.1	0.0	150.7			
LnGrp Delay(d),s/veh	105.1	5.5	0.0	0.0	26.8	24.9	534.8	0.0	527.5			
LnGrp LOS	F	A			C	C	F		F			
Approach Vol, veh/h		1348			1280			2143				
Approach Delay, s/veh		29.1			25.7			531.4				
Approach LOS		C			C			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	67.0		43.0		82.0		
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	10.0	62.0		38.0		77.0		
Max Q Clear Time (g_c+I1), s	12.0	40.9		40.0		12.9		
Green Ext Time (p_c), s	0.0	3.4		0.0		3.2		

Intersection Summary		
HCM 2010 Ctrl Delay		253.8
HCM 2010 LOS		F

HCM 2010 Signalized Intersection Summary
704: NW 2nd Ave & NW 62nd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	1145	264	53	878	44	182	367	67	36	170	151
Future Volume (veh/h)	169	1145	264	53	878	44	182	367	67	36	170	151
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	178	1205	278	56	924	46	192	386	71	38	179	159
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	1608	367	185	1828	91	273	413	351	112	313	266
Arrive On Green	0.06	0.56	0.56	0.03	0.53	0.53	0.08	0.22	0.22	0.03	0.17	0.17
Sat Flow, veh/h	1774	2863	654	1774	3431	171	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	178	740	743	56	477	493	192	386	71	38	179	159
Grp Sat Flow(s),veh/h/ln	1774	1770	1747	1774	1770	1833	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	6.8	47.2	48.7	2.1	25.8	25.8	12.0	30.5	5.5	2.6	13.3	13.9
Cycle Q Clear(g_c), s	6.8	47.2	48.7	2.1	25.8	25.8	12.0	30.5	5.5	2.6	13.3	13.9
Prop In Lane	1.00		0.37	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	361	994	982	185	943	976	273	413	351	112	313	266
V/C Ratio(X)	0.49	0.74	0.76	0.30	0.51	0.51	0.70	0.93	0.20	0.34	0.57	0.60
Avail Cap(c_a), veh/h	398	994	982	274	943	976	273	447	380	207	447	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	24.8	25.1	22.6	22.4	22.4	48.4	57.3	47.6	51.5	57.4	57.7
Incr Delay (d2), s/veh	0.3	4.4	4.8	0.3	1.9	1.9	6.8	25.7	0.2	0.7	1.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	31.8	32.2	1.9	19.0	19.6	11.3	25.8	4.4	2.4	11.2	10.3
LnGrp Delay(d),s/veh	17.4	29.2	29.9	22.9	24.3	24.3	55.2	83.0	47.8	52.1	58.6	59.3
LnGrp LOS	B	C	C	C	C	C	E	F	D	D	E	E
Approach Vol, veh/h		1661			1026			649			376	
Approach Delay, s/veh		28.2			24.2			70.9			58.2	
Approach LOS		C			C			E			E	

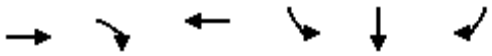
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	85.9	10.0	39.3	10.5	90.3	18.0	31.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	12.0	66.0	12.0	36.0	12.0	66.0	12.0	36.0
Max Q Clear Time (g_c+I1), s	8.8	27.8	4.6	32.5	4.1	50.7	14.0	15.9
Green Ext Time (p_c), s	0.1	2.3	0.0	0.7	0.0	3.9	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	861	47	95	285	119	58	1306	167	340	875	116
Future Volume (veh/h)	338	861	47	95	285	119	58	1306	167	340	875	116
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	348	888	48	98	294	123	60	1346	172	351	902	120
Adj No. of Lanes	1	2	0	1	2	0	1	3	0	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	309	845	46	169	599	245	273	1345	172	363	1452	748
Arrive On Green	0.06	0.25	0.25	0.06	0.25	0.25	0.05	0.30	0.30	0.17	0.42	0.42
Sat Flow, veh/h	1740	3349	181	1740	2405	984	1740	4479	572	1740	3471	1553
Grp Volume(v), veh/h	348	460	476	98	210	207	60	999	519	351	902	120
Grp Sat Flow(s),veh/h/ln	1740	1736	1795	1740	1736	1653	1740	1663	1726	1740	1736	1553
Q Serve(g_s), s	7.0	28.0	28.0	4.6	11.5	11.9	2.6	33.3	33.3	18.1	22.7	4.8
Cycle Q Clear(g_c), s	7.0	28.0	28.0	4.6	11.5	11.9	2.6	33.3	33.3	18.1	22.7	4.8
Prop In Lane	1.00		0.10	1.00		0.59	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	309	438	453	169	432	412	273	999	518	363	1452	748
V/C Ratio(X)	1.13	1.05	1.05	0.58	0.49	0.50	0.22	1.00	1.00	0.97	0.62	0.16
Avail Cap(c_a), veh/h	309	438	453	175	438	417	478	999	518	363	1452	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	41.0	41.5	41.5	31.5	35.6	35.8	24.5	38.8	38.8	33.5	25.4	16.2
Incr Delay (d2), s/veh	89.8	57.0	56.3	2.2	0.5	0.6	0.1	28.6	39.7	35.1	1.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	24.8	36.6	37.7	4.1	9.0	8.9	2.2	34.6	38.8	19.9	16.2	3.8
LnGrp Delay(d),s/veh	130.8	98.5	97.8	33.7	36.1	36.3	24.6	67.4	78.5	68.6	27.1	16.6
LnGrp LOS	F	F	F	C	D	D	C	F	F	E	C	B
Approach Vol, veh/h		1284			515			1578			1373	
Approach Delay, s/veh		107.0			35.7			69.4			36.8	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	52.4	13.0	33.7	25.0	39.3	12.7	34.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	33.0	7.0	28.0	19.0	33.0	7.0	28.0
Max Q Clear Time (g_c+I1), s	4.6	24.7	9.0	13.9	20.1	35.3	6.6	30.0
Green Ext Time (p_c), s	0.0	2.0	0.0	1.8	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	66.5
HCM 2010 LOS	E



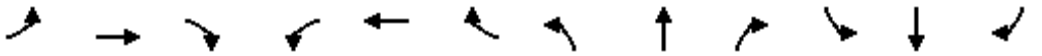
Lane Group	EBT	EBR	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1122	290	551	501	761	94
v/c Ratio	0.77	0.39	0.66	0.61	0.87	0.12
Control Delay	30.9	12.6	12.6	25.1	38.8	4.6
Queue Delay	49.3	1.3	2.4	0.3	7.3	0.0
Total Delay	80.2	13.9	15.0	25.4	46.1	4.6
Queue Length 50th (ft)	362	68	61	252	467	3
Queue Length 95th (ft)	452	136	m52	364	#713	31
Internal Link Dist (ft)	267		223		463	
Turn Bay Length (ft)						
Base Capacity (vph)	1450	752	830	826	870	784
Starvation Cap Reductn	506	275	163	0	83	0
Spillback Cap Reductn	0	0	0	50	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.61	0.83	0.65	0.97	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
902: NW 6th Ct/SB On-Ramp/NW 6th Ct & NW 79th St

2045 No Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1100	284	0	540	0	0	0	0	491	746	92
Future Volume (vph)	0	1100	284	0	540	0	0	0	0	491	746	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		3.0					4.6	4.6	4.6
Lane Util. Factor		*0.91	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	1.00	1.00
Satd. Flow (prot)		3325	1553		1827					1736	1827	1553
Flt Permitted		1.00	1.00		1.00					0.95	1.00	1.00
Satd. Flow (perm)		3325	1553		1827					1736	1827	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1122	290	0	551	0	0	0	0	501	761	94
RTOR Reduction (vph)	0	0	75	0	0	0	0	0	0	0	0	45
Lane Group Flow (vph)	0	1122	215	0	551	0	0	0	0	501	761	49
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type		NA	Perm		NA					pm+pt	NA	Perm
Protected Phases		6			1 2					8	3	
Permitted Phases			6	2						3		3
Actuated Green, G (s)		48.0	48.0		48.0					52.4	52.4	52.4
Effective Green, g (s)		48.0	48.0		48.0					52.4	52.4	52.4
Actuated g/C Ratio		0.44	0.44		0.44					0.48	0.48	0.48
Clearance Time (s)		5.0	5.0							4.6	4.6	4.6
Vehicle Extension (s)		1.0	1.0							3.0	3.5	3.5
Lane Grp Cap (vph)		1450	677		797					826	870	739
v/s Ratio Prot		c0.34			0.30					0.13	c0.42	
v/s Ratio Perm			0.14							0.16		0.03
v/c Ratio		0.77	0.32		0.69					0.61	0.87	0.07
Uniform Delay, d1		26.4	20.3		25.0					21.2	25.9	15.6
Progression Factor		1.00	1.00		0.51					1.00	1.00	1.00
Incremental Delay, d2		4.1	1.2		0.2					1.3	10.0	0.0
Delay (s)		30.5	21.5		12.9					22.5	35.8	15.6
Level of Service		C	C		B					C	D	B
Approach Delay (s)		28.6			12.9			0.0			29.5	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	132.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	478	1206	672	821	356
v/c Ratio	0.75	0.50	1.17	1.12	0.90
Control Delay	56.8	6.0	128.1	110.5	55.3
Queue Delay	0.0	0.8	0.0	0.0	0.0
Total Delay	56.8	6.8	128.1	110.5	55.3
Queue Length 50th (ft)	164	137	~564	~362	194
Queue Length 95th (ft)	214	151	#792	#495	#389
Internal Link Dist (ft)		223	529	429	
Turn Bay Length (ft)	190				
Base Capacity (vph)	635	2398	575	733	397
Starvation Cap Reductn	0	810	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.76	1.17	1.12	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	1158	0	0	542	103	0	648	482	0	0	0
Future Volume (vph)	459	1158	0	0	542	103	0	648	482	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			5.0			4.6	4.6			
Lane Util. Factor	0.97	0.95			1.00			0.91	0.91			
Frt	1.00	1.00			0.98			0.97	0.85			
Flt Protected	0.95	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	3367	3471			1788			3236	1413			
Flt Permitted	0.41	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1451	3471			1788			3236	1413			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	478	1206	0	0	565	107	0	675	502	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	16	84	0	0	0
Lane Group Flow (vph)	478	1206	0	0	666	0	0	805	272	0	0	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom	NA			NA			NA	Perm			
Protected Phases	1	6 8			2			7				
Permitted Phases	8								7			
Actuated Green, G (s)	33.4	76.0			35.0			24.4	24.4			
Effective Green, g (s)	33.4	71.4			35.0			24.4	24.4			
Actuated g/C Ratio	0.30	0.65			0.32			0.22	0.22			
Clearance Time (s)	3.0				5.0			4.6	4.6			
Vehicle Extension (s)	2.0				1.0			2.5	2.5			
Lane Grp Cap (vph)	614	2252			568			717	313			
v/s Ratio Prot	c0.07	0.35			c0.37			c0.25				
v/s Ratio Perm	c0.17								0.19			
v/c Ratio	0.78	0.54			1.17			1.12	0.87			
Uniform Delay, d1	35.6	10.4			37.5			42.8	41.3			
Progression Factor	1.43	0.66			1.00			1.00	1.00			
Incremental Delay, d2	4.1	0.2			95.1			72.9	21.5			
Delay (s)	54.8	7.1			132.6			115.7	62.7			
Level of Service	D	A			F			F	E			
Approach Delay (s)		20.6			132.6			99.7			0.0	
Approach LOS		C			F			F			A	

Intersection Summary			
HCM 2000 Control Delay	68.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	132.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	378	240	780	34	1796	0	0	386	686
Future Volume (veh/h)	0	0	0	378	240	780	34	1796	0	0	386	686
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				390	247	804	35	1852	0	0	398	707
Adj No. of Lanes				1	2	1	1	3	0	0	3	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				572	1141	510	208	2921	0	0	1755	820
Arrive On Green				0.11	0.11	0.11	0.04	0.77	0.00	0.00	0.70	0.70
Sat Flow, veh/h				1757	3505	1568	1757	5202	0	0	3523	1568
Grp Volume(v), veh/h				390	247	804	35	1852	0	0	398	707
Grp Sat Flow(s),veh/h/ln				1757	1752	1568	1757	1679	0	0	1679	1568
Q Serve(g_s), s				23.5	7.1	35.8	1.0	18.1	0.0	0.0	4.7	37.7
Cycle Q Clear(g_c), s				23.5	7.1	35.8	1.0	18.1	0.0	0.0	4.7	37.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				572	1141	510	208	2921	0	0	1755	820
V/C Ratio(X)				0.68	0.22	1.58	0.17	0.63	0.00	0.00	0.23	0.86
Avail Cap(c_a), veh/h				572	1141	510	395	2921	0	0	1755	820
HCM Platoon Ratio				0.33	0.33	0.33	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.65	0.65	0.65	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.6	36.3	49.1	17.9	7.3	0.0	0.0	8.7	13.7
Incr Delay (d2), s/veh				2.3	0.1	265.1	0.0	0.1	0.0	0.0	0.3	11.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				16.4	5.9	120.4	0.8	9.6	0.0	0.0	4.1	25.5
LnGrp Delay(d),s/veh				45.9	36.4	314.2	17.9	7.4	0.0	0.0	9.0	25.3
LnGrp LOS				D	D	F	B	A			A	C
Approach Vol, veh/h					1441			1887			1105	
Approach Delay, s/veh					194.0			7.6			19.5	
Approach LOS					F			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		69.0		41.0	6.3	62.7		
Change Period (Y+Rc), s		* 5.2		* 5.2	3.0	* 5.2		
Max Green Setting (Gmax), s		* 64		* 36	15.0	* 46		
Max Q Clear Time (g_c+I1), s		20.1		37.8	3.0	39.7		
Green Ext Time (p_c), s		7.6		0.0	0.0	2.0		

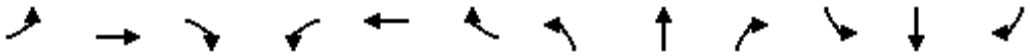
Intersection Summary	
HCM 2010 Ctrl Delay	71.2
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBT	SBT
Lane Group Flow (vph)	1890	1078
v/c Ratio	0.70	0.84
Control Delay	7.3	37.0
Queue Delay	1.0	0.0
Total Delay	8.3	37.0
Queue Length 50th (ft)	93	342
Queue Length 95th (ft)	106	420
Internal Link Dist (ft)	240	535
Turn Bay Length (ft)		
Base Capacity (vph)	2704	1373
Starvation Cap Reductn	500	0
Spillback Cap Reductn	178	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.86	0.79

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	600	1271	0	0	0	0	0	633	435
Future Volume (vph)	0	0	0	600	1271	0	0	0	0	0	633	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.2						5.2	
Lane Util. Factor					0.91						0.95	
Frt					1.00						0.94	
Flt Protected					0.98						1.00	
Satd. Flow (prot)					5005						3323	
Flt Permitted					0.98						1.00	
Satd. Flow (perm)					5005						3323	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	0	606	1284	0	0	0	0	0	639	439
RTOR Reduction (vph)	0	0	0	0	65	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	0	1825	0	0	0	0	0	1057	0
Turn Type				Split	NA						NA	
Protected Phases				2 3	2 3						4	
Permitted Phases												
Actuated Green, G (s)					58.0						41.6	
Effective Green, g (s)					58.0						41.6	
Actuated g/C Ratio					0.53						0.38	
Clearance Time (s)											5.2	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)					2639						1256	
v/s Ratio Prot					c0.36						c0.32	
v/s Ratio Perm												
v/c Ratio					0.69						0.84	
Uniform Delay, d1					19.3						31.2	
Progression Factor					0.35						1.00	
Incremental Delay, d2					0.4						5.3	
Delay (s)					7.2						36.5	
Level of Service					A						D	
Approach Delay (s)		0.0			7.2			0.0			36.5	
Approach LOS		A			A			A			D	

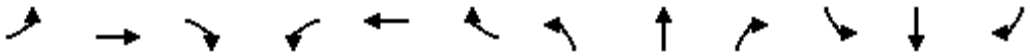
Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1604	460	1263
v/c Ratio	0.85	0.66	0.71
Control Delay	37.2	22.9	19.3
Queue Delay	0.1	0.0	0.6
Total Delay	37.3	22.9	19.9
Queue Length 50th (ft)	385	169	248
Queue Length 95th (ft)	#491	299	m270
Internal Link Dist (ft)	629		23
Turn Bay Length (ft)			
Base Capacity (vph)	1887	696	1874
Starvation Cap Reductn	0	0	256
Spillback Cap Reductn	19	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.86	0.66	0.78

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1476	423	455	707	0	0	0	0
Future Volume (vph)	0	0	0	0	1476	423	455	707	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.2	5.2		5.2				
Lane Util. Factor					0.91	1.00		0.95				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.98				
Satd. Flow (prot)					4940	1538		3372				
Flt Permitted					1.00	1.00		0.98				
Satd. Flow (perm)					4940	1538		3372				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1604	460	495	768	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	109	0	10	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1604	351	0	1253	0	0	0	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type					NA	Perm	Split	NA				
Protected Phases					2		8	8				
Permitted Phases						2						
Actuated Green, G (s)					42.0	42.0		57.6				
Effective Green, g (s)					42.0	42.0		57.6				
Actuated g/C Ratio					0.38	0.38		0.52				
Clearance Time (s)					5.2	5.2		5.2				
Vehicle Extension (s)					1.0	1.0		3.0				
Lane Grp Cap (vph)					1886	587		1765				
v/s Ratio Prot					c0.32			c0.37				
v/s Ratio Perm						0.23						
v/c Ratio					0.85	0.60		0.71				
Uniform Delay, d1					31.1	27.2		19.9				
Progression Factor					1.00	1.00		0.88				
Incremental Delay, d2					5.0	4.5		1.2				
Delay (s)					36.2	31.7		18.7				
Level of Service					D	C		B				
Approach Delay (s)		0.0			35.2			18.7			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
1001: NW 7th Ave/SR 7 & NW 95th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	762	175	300	708	295	182	2268	262	156	621	50
Future Volume (veh/h)	272	762	175	300	708	295	182	2268	262	156	621	50
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	278	778	179	306	722	301	186	2314	267	159	634	51
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	238	702	442	238	702	427	451	1891	214	192	1913	153
Arrive On Green	0.10	0.20	0.20	0.10	0.20	0.20	0.11	0.54	0.54	0.09	0.52	0.52
Sat Flow, veh/h	1792	3574	1599	1792	3574	1599	1792	4683	529	1792	4849	387
Grp Volume(v), veh/h	278	778	179	306	722	301	186	1678	903	159	446	239
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1599	1792	1712	1788	1792	1712	1813
Q Serve(g_s), s	10.6	21.6	10.0	10.6	21.6	18.7	6.8	44.4	44.4	5.8	8.2	8.3
Cycle Q Clear(g_c), s	10.6	21.6	10.0	10.6	21.6	18.7	6.8	44.4	44.4	5.8	8.2	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.21
Lane Grp Cap(c), veh/h	238	702	442	238	702	427	451	1382	722	192	1351	715
V/C Ratio(X)	1.17	1.11	0.41	1.29	1.03	0.70	0.41	1.21	1.25	0.83	0.33	0.33
Avail Cap(c_a), veh/h	238	702	442	238	702	427	497	1382	722	254	1351	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	44.2	32.4	35.5	44.2	36.4	16.9	25.5	25.5	25.2	17.8	17.8
Incr Delay (d2), s/veh	111.1	67.7	0.4	155.0	40.6	4.6	0.2	103.1	124.0	12.0	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.6	31.0	7.9	28.8	26.2	13.5	5.9	72.7	83.5	6.2	7.1	7.8
LnGrp Delay(d),s/veh	146.6	111.9	32.9	190.5	84.8	41.0	17.1	128.6	149.5	37.2	18.4	19.1
LnGrp LOS	F	F	C	F	F	D	B	F	F	D	B	B
Approach Vol, veh/h		1235			1329			2767			844	
Approach Delay, s/veh		108.3			99.2			127.9			22.2	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	49.8	17.0	28.0	14.2	50.8	17.0	28.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	11.6	40.6	10.6	21.6	11.6	40.6	10.6	21.6
Max Q Clear Time (g_c+I1), s	8.8	10.3	12.6	23.6	7.8	46.4	12.6	23.6
Green Ext Time (p_c), s	0.1	1.7	0.0	0.0	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	103.4
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
1002: SB On-Ramp/SB Off-Ramp & NW 95th St

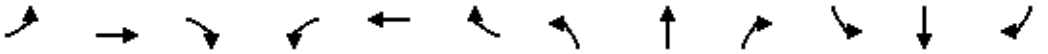
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	904	257	452	794	0	0	0	0	242	4	547
Future Volume (veh/h)	0	904	257	452	794	0	0	0	0	242	4	547
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h	0	922	0	461	810	0				247	4	558
Adj No. of Lanes	0	2	1	1	2	0				1	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	2038	1096	591	2920	0				106	1	94
Arrive On Green	0.00	0.69	0.00	0.10	0.83	0.00				0.06	0.06	0.06
Sat Flow, veh/h	0	3334	1583	1774	3632	0				1774	11	1574
Grp Volume(v), veh/h	0	922	0	461	810	0				247	0	562
Grp Sat Flow(s),veh/h/ln	0	1472	1583	1774	1770	0				1774	0	1585
Q Serve(g_s), s	0.0	11.8	0.0	5.5	4.4	0.0				5.0	0.0	5.0
Cycle Q Clear(g_c), s	0.0	11.8	0.0	5.5	4.4	0.0				5.0	0.0	5.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	2038	1096	591	2920	0				106	0	94
V/C Ratio(X)	0.00	0.45	0.00	0.78	0.28	0.00				2.34	0.00	5.96
Avail Cap(c_a), veh/h	0	2038	1096	841	2941	0				106	0	94
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.21	0.21	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.8	0.0	6.8	1.7	0.0				39.5	0.0	39.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.4	0.1	0.0				631.0	0.0	2253.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.8	0.0	9.1	3.1	0.0				37.7	0.0	110.2
LnGrp Delay(d),s/veh	0.0	5.9	0.0	7.2	1.7	0.0				670.5	0.0	2292.7
LnGrp LOS		A		A	A					F		F
Approach Vol, veh/h		922			1271						809	
Approach Delay, s/veh		5.9			3.7						1797.4	
Approach LOS		A			A						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		74.5			11.1	63.4		9.5
Change Period (Y+Rc), s		* 5.2			3.0	* 5.2		4.5
Max Green Setting (Gmax), s		* 70			20.0	* 47		5.0
Max Q Clear Time (g_c+I1), s		6.4			7.5	13.8		7.0
Green Ext Time (p_c), s		2.4			0.6	2.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	487.7
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	504	673	0	0	793	157	363	128	841	0	0	0
Future Volume (veh/h)	504	673	0	0	793	157	363	128	841	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	542	724	0	0	853	169	390	138	904			
Adj No. of Lanes	1	2	0	0	2	0	0	1	1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	467	2156	0	0	1076	213	398	141	475			
Arrive On Green	0.24	0.81	0.00	0.00	0.53	0.53	0.30	0.30	0.30			
Sat Flow, veh/h	1774	3632	0	0	3099	533	1327	470	1583			
Grp Volume(v), veh/h	542	724	0	0	461	561	528	0	904			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1453	1769	1796	0	1583			
Q Serve(g_s), s	20.0	5.9	0.0	0.0	28.2	28.3	32.1	0.0	33.0			
Cycle Q Clear(g_c), s	20.0	5.9	0.0	0.0	28.2	28.3	32.1	0.0	33.0			
Prop In Lane	1.00		0.00	0.00		0.30	0.74		1.00			
Lane Grp Cap(c), veh/h	467	2156	0	0	581	707	539	0	475			
V/C Ratio(X)	1.16	0.34	0.00	0.00	0.79	0.79	0.98	0.00	1.90			
Avail Cap(c_a), veh/h	467	2156	0	0	581	707	539	0	475			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.60	0.60	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.7	4.6	0.0	0.0	22.1	22.1	38.2	0.0	38.5			
Incr Delay (d2), s/veh	86.5	0.3	0.0	0.0	10.6	8.9	33.5	0.0	414.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	45.5	5.0	0.0	0.0	18.8	21.8	28.3	0.0	124.3			
LnGrp Delay(d),s/veh	110.2	4.9	0.0	0.0	32.7	31.0	71.7	0.0	452.8			
LnGrp LOS	F	A			C	C	E		F			
Approach Vol, veh/h		1266			1022			1432				
Approach Delay, s/veh		50.0			31.7			312.2				
Approach LOS		D			C			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	23.0	49.0		38.0		72.0		
Change Period (Y+Rc), s	3.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.0	44.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	22.0	30.3		35.0		7.9		
Green Ext Time (p_c), s	0.0	4.3		0.0		5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	145.9
HCM 2010 LOS	F

Part 2
AM Peak Period

HCM 2010 Signalized Intersection Summary
1101: NW 7th Ave/SR 7 & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	932	222	170	954	199	86	561	113	262	1969	180
Future Volume (veh/h)	301	932	222	170	954	199	86	561	113	262	1969	180
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	338	1047	249	191	1072	224	97	630	127	294	2212	202
Adj No. of Lanes	1	3	0	1	3	0	1	3	0	1	3	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	247	934	222	229	1241	259	180	1462	290	406	1807	163
Arrive On Green	0.09	0.30	0.28	0.09	0.30	0.28	0.08	0.47	0.43	0.13	0.52	0.49
Sat Flow, veh/h	1740	3112	740	1740	4136	864	1740	4176	829	1740	4658	420
Grp Volume(v), veh/h	338	725	571	191	862	434	97	500	257	294	1571	843
Grp Sat Flow(s),veh/h/ln	1740	1078	1696	1740	1663	1675	1740	1663	1681	1740	1663	1753
Q Serve(g_s), s	9.0	30.0	30.0	7.7	24.5	24.6	3.5	10.0	10.5	10.0	38.8	38.8
Cycle Q Clear(g_c), s	9.0	30.0	30.0	7.7	24.5	24.6	3.5	10.0	10.5	10.0	38.8	38.8
Prop In Lane	1.00		0.44	1.00		0.52	1.00		0.49	1.00		0.24
Lane Grp Cap(c), veh/h	247	647	509	229	998	502	180	1164	588	406	1290	680
V/C Ratio(X)	1.37	1.12	1.12	0.84	0.86	0.86	0.54	0.43	0.44	0.72	1.22	1.24
Avail Cap(c_a), veh/h	247	647	509	229	998	502	246	1164	588	406	1290	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	35.0	35.5	25.8	33.1	33.6	24.3	20.1	20.7	20.0	24.2	24.6
Incr Delay (d2), s/veh	190.6	73.5	77.8	17.1	6.0	11.2	0.9	1.2	2.4	5.4	105.2	119.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	32.1	27.9	45.0	7.8	17.0	18.1	3.1	8.3	9.0	9.8	65.3	73.9
LnGrp Delay(d),s/veh	219.3	108.5	113.3	42.9	39.1	44.9	25.2	21.2	23.1	25.5	129.4	144.5
LnGrp LOS	F	F	F	D	D	D	C	C	C	C	F	F
Approach Vol, veh/h		1634			1487			854			2708	
Approach Delay, s/veh		133.1			41.3			22.2			122.8	
Approach LOS		F			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	42.8	13.0	34.0	14.0	39.0	13.0	34.0
Change Period (Y+Rc), s	5.0	6.3	5.0	* 6.1	5.0	6.3	5.0	* 6.1
Max Green Setting (Gmax), s	9.0	32.7	8.0	* 28	9.0	32.7	8.0	* 28
Max Q Clear Time (g_c+I1), s	5.5	40.8	9.7	32.0	12.0	12.5	11.0	26.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	94.3
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1002	110	599	744	0	0	0	0	960	58	534
Future Volume (veh/h)	0	1002	110	599	744	0	0	0	0	960	58	534
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1900	1881	1881
Adj Flow Rate, veh/h	0	1139	0	681	845	0				1091	66	607
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	1
Cap, veh/h	0	1237	591	287	1859	0				678	41	640
Arrive On Green	0.00	0.49	0.00	0.15	0.69	0.00				0.40	0.40	0.40
Sat Flow, veh/h	0	3555	1599	1792	3668	0				1694	102	1599
Grp Volume(v), veh/h	0	1139	0	681	845	0				1157	0	607
Grp Sat Flow(s),veh/h/ln	0	1674	1599	1792	1787	0				1796	0	1599
Q Serve(g_s), s	0.0	31.6	0.0	11.1	10.6	0.0				40.0	0.0	36.7
Cycle Q Clear(g_c), s	0.0	31.6	0.0	11.1	10.6	0.0				40.0	0.0	36.7
Prop In Lane	0.00		1.00	1.00		0.00				0.94		1.00
Lane Grp Cap(c), veh/h	0	1237	591	287	1859	0				719	0	640
V/C Ratio(X)	0.00	0.92	0.00	2.38	0.45	0.00				1.61	0.00	0.95
Avail Cap(c_a), veh/h	0	1406	672	287	1859	0				719	0	640
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.49	0.49	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	0.0	24.8	9.0	0.0				30.0	0.0	29.0
Incr Delay (d2), s/veh	0.0	1.0	0.0	624.3	0.4	0.0				281.0	0.0	23.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	16.4	0.0	103.0	7.9	0.0				136.5	0.0	27.8
LnGrp Delay(d),s/veh	0.0	25.0	0.0	649.1	9.4	0.0				311.0	0.0	52.6
LnGrp LOS		C		F	A					F		D
Approach Vol, veh/h		1139			1526						1764	
Approach Delay, s/veh		25.0			294.9						222.1	
Approach LOS		C			F						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		56.0			15.1	40.9		44.0
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		51.0			7.0	41.0		39.0
Max Q Clear Time (g_c+I1), s		12.6			13.1	33.6		42.0
Green Ext Time (p_c), s		2.5			0.0	2.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	196.5
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
1103: NW 6th Ave/NB Off-Ramp/NB On-Ramp & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	829	1143	0	0	982	395	404	68	229	0	0	0
Future Volume (veh/h)	829	1143	0	0	982	395	404	68	229	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	864	1191	0	0	1023	411	472	0	239			
Adj No. of Lanes	1	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	394	2568	0	0	1708	943	690	0	308			
Arrive On Green	0.12	0.96	0.00	0.00	0.79	0.79	0.19	0.00	0.19			
Sat Flow, veh/h	1774	3632	0	0	3297	1583	3548	0	1583			
Grp Volume(v), veh/h	864	1191	0	0	1023	411	472	0	239			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1434	1583	1774	0	1583			
Q Serve(g_s), s	9.0	2.1	0.0	0.0	14.1	8.2	12.4	0.0	14.3			
Cycle Q Clear(g_c), s	9.0	2.1	0.0	0.0	14.1	8.2	12.4	0.0	14.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	394	2568	0	0	1708	943	690	0	308			
V/C Ratio(X)	2.19	0.46	0.00	0.00	0.60	0.44	0.68	0.00	0.78			
Avail Cap(c_a), veh/h	394	2568	0	0	1708	943	1100	0	491			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.36	0.36	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.4	0.5	0.0	0.0	5.7	5.1	37.4	0.0	38.2			
Incr Delay (d2), s/veh	539.6	0.2	0.0	0.0	1.6	1.5	0.9	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	115.1	1.4	0.0	0.0	9.6	7.0	10.2	0.0	10.7			
LnGrp Delay(d),s/veh	554.9	0.7	0.0	0.0	7.2	6.5	38.3	0.0	41.4			
LnGrp LOS	F	A			A	A	D		D			
Approach Vol, veh/h		2055			1434			711				
Approach Delay, s/veh		233.7			7.0			39.3				
Approach LOS		F			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.0	63.6		23.4		76.6		
Change Period (Y+Rc), s	3.5	* 5.2		* 5.4		* 5.2		
Max Green Setting (Gmax), s	9.5	* 47		* 30		* 60		
Max Q Clear Time (g_c+I1), s	11.0	16.1		16.3		4.1		
Green Ext Time (p_c), s	0.0	3.3		1.7		3.9		

Intersection Summary		
HCM 2010 Ctrl Delay		123.4
HCM 2010 LOS		F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1032	213	84	961	40	316	73	100	41	158	88
Future Volume (veh/h)	68	1032	213	84	961	40	316	73	100	41	158	88
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	79	1200	248	98	1117	47	367	85	116	48	184	102
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	357	1951	400	275	2029	85	207	34	47	89	269	139
Arrive On Green	0.05	0.88	0.87	0.77	0.77	0.76	0.26	0.26	0.25	0.26	0.26	0.25
Sat Flow, veh/h	1792	2956	606	370	3495	147	569	132	180	183	1036	536
Grp Volume(v), veh/h	79	722	726	98	571	593	568	0	0	334	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1774	370	1787	1855	880	0	0	1756	0	0
Q Serve(g_s), s	1.7	10.7	11.2	11.1	12.7	12.7	8.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	10.7	11.2	14.3	12.7	12.7	26.0	0.0	0.0	17.3	0.0	0.0
Prop In Lane	1.00		0.34	1.00		0.08	0.65		0.20	0.14		0.31
Lane Grp Cap(c), veh/h	357	1180	1171	275	1038	1077	288	0	0	498	0	0
V/C Ratio(X)	0.22	0.61	0.62	0.36	0.55	0.55	1.97	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	376	1180	1171	275	1038	1077	288	0	0	498	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.4	2.7	2.8	7.1	6.2	6.2	41.2	0.0	0.0	33.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.4	2.5	3.6	2.1	2.0	449.3	0.0	0.0	3.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	9.5	9.7	2.5	10.7	11.1	79.0	0.0	0.0	13.8	0.0	0.0
LnGrp Delay(d),s/veh	8.5	5.1	5.3	10.7	8.3	8.3	490.6	0.0	0.0	37.1	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	F			D		
Approach Vol, veh/h		1527			1262			568			334	
Approach Delay, s/veh		5.4			8.5			490.6			37.1	
Approach LOS		A			A			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	62.1		30.0		70.0		30.0
Change Period (Y+Rc), s	3.5	* 4.6		* 4.8		* 4.6		* 4.8
Max Green Setting (Gmax), s	5.5	* 56		* 25		* 65		* 25
Max Q Clear Time (g_c+I1), s	3.7	16.3		28.0		13.2		19.3
Green Ext Time (p_c), s	0.0	4.3		0.0		4.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	84.0
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	1109	109	118	1479	80	169	529	97	139	2097	359
Future Volume (veh/h)	237	1109	109	118	1479	80	169	529	97	139	2097	359
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	263	1232	121	131	1643	89	188	588	108	154	2330	399
Adj No. of Lanes	1	3	0	1	3	0	1	3	0	1	3	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	1413	139	252	1482	80	232	1559	282	433	1585	261
Arrive On Green	0.09	0.30	0.28	0.09	0.30	0.28	0.12	0.48	0.44	0.12	0.48	0.44
Sat Flow, veh/h	1774	4709	462	1774	4938	267	1774	4332	783	1774	4402	724
Grp Volume(v), veh/h	263	887	466	131	1128	604	188	458	238	154	1772	957
Grp Sat Flow(s),veh/h/ln	1774	1695	1781	1774	1695	1816	1774	1695	1725	1774	1695	1735
Q Serve(g_s), s	9.0	24.8	24.8	4.9	30.0	30.0	6.6	8.6	9.0	5.2	36.0	36.0
Cycle Q Clear(g_c), s	9.0	24.8	24.8	4.9	30.0	30.0	6.6	8.6	9.0	5.2	36.0	36.0
Prop In Lane	1.00		0.26	1.00		0.15	1.00		0.45	1.00		0.42
Lane Grp Cap(c), veh/h	232	1017	534	252	1017	545	232	1220	621	433	1220	625
V/C Ratio(X)	1.14	0.87	0.87	0.52	1.11	1.11	0.81	0.38	0.38	0.36	1.45	1.53
Avail Cap(c_a), veh/h	232	1017	534	252	1017	545	232	1220	621	433	1220	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	33.2	33.5	24.2	35.0	35.2	22.6	18.9	19.7	16.5	26.1	26.9
Incr Delay (d2), s/veh	100.4	8.1	14.1	0.9	62.9	72.2	18.0	0.9	1.8	0.2	208.1	247.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.2	18.6	20.5	4.3	41.2	46.6	7.7	7.5	8.0	4.6	93.6	108.1
LnGrp Delay(d),s/veh	126.6	41.3	47.6	25.1	97.9	107.4	40.7	19.8	21.5	16.7	234.2	274.1
LnGrp LOS	F	D	D	C	F	F	D	B	C	B	F	F
Approach Vol, veh/h		1616			1863			884			2883	
Approach Delay, s/veh		57.0			95.9			24.7			235.8	
Approach LOS		E			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	40.0	13.0	34.0	13.0	40.0	13.0	34.0
Change Period (Y+Rc), s	6.9	6.9	6.5	6.5	6.9	6.9	6.5	6.5
Max Green Setting (Gmax), s	6.1	33.1	6.5	27.5	6.1	33.1	6.5	27.5
Max Q Clear Time (g_c+I1), s	8.6	38.0	11.0	32.0	7.2	11.0	6.9	26.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	134.2
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
1203: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 119th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	1091	0	0	1340	70	951	28	160	0	0	0
Future Volume (veh/h)	212	1091	0	0	1340	70	951	28	160	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	219	1125	0	0	1381	72	1043	0	120			
Adj No. of Lanes	1	2	0	0	2	0	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	233	2063	0	0	1653	86	1196	0	534			
Arrive On Green	0.08	0.78	0.00	0.00	0.64	0.63	0.34	0.00	0.34			
Sat Flow, veh/h	1774	3632	0	0	3516	178	3548	0	1583			
Grp Volume(v), veh/h	219	1125	0	0	713	740	1043	0	120			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1831	1774	0	1583			
Q Serve(g_s), s	6.0	12.4	0.0	0.0	31.0	31.3	27.6	0.0	5.4			
Cycle Q Clear(g_c), s	6.0	12.4	0.0	0.0	31.0	31.3	27.6	0.0	5.4			
Prop In Lane	1.00		0.00	0.00		0.10	1.00		1.00			
Lane Grp Cap(c), veh/h	233	2063	0	0	855	884	1196	0	534			
V/C Ratio(X)	0.94	0.55	0.00	0.00	0.83	0.84	0.87	0.00	0.22			
Avail Cap(c_a), veh/h	233	2063	0	0	855	884	1526	0	681			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.80	0.80	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.2	6.1	0.0	0.0	14.8	14.9	31.1	0.0	23.8			
Incr Delay (d2), s/veh	41.6	1.0	0.0	0.0	7.6	7.6	4.5	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	9.8	10.2	0.0	0.0	22.6	23.6	20.4	0.0	4.3			
LnGrp Delay(d),s/veh	64.8	7.1	0.0	0.0	22.4	22.5	35.6	0.0	23.9			
LnGrp LOS	E	A			C	C	D		C			
Approach Vol, veh/h		1344			1453			1163				
Approach Delay, s/veh		16.5			22.5			34.4				
Approach LOS		B			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.0	52.3		37.7		62.3		
Change Period (Y+Rc), s	3.0	* 4.9		5.0		* 4.9		
Max Green Setting (Gmax), s	7.0	* 38		42.0		* 48		
Max Q Clear Time (g_c+I1), s	8.0	33.3		29.6		14.4		
Green Ext Time (p_c), s	0.0	2.0		3.1		3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	23.9
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1204: NW 5th Ave & NW 119th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1124	132	99	1214	11	93	39	43	10	102	76
Future Volume (veh/h)	25	1124	132	99	1214	11	93	39	43	10	102	76
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	28	1277	150	112	1380	12	106	44	49	11	116	86
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	363	2403	281	353	2706	24	128	128	142	214	158	117
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.16	0.16	0.15	0.16	0.16	0.15
Sat Flow, veh/h	383	3162	370	370	3561	31	1164	798	889	1285	985	730
Grp Volume(v), veh/h	28	705	722	112	679	713	106	0	93	11	0	202
Grp Sat Flow(s),veh/h/ln	383	1752	1779	370	1752	1839	1164	0	1688	1285	0	1716
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	4.9	0.8	0.0	11.2
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	16.0	0.0	4.9	5.7	0.0	11.2
Prop In Lane	1.00		0.21	1.00		0.02	1.00		0.53	1.00		0.43
Lane Grp Cap(c), veh/h	363	1332	1352	353	1332	1398	128	0	270	214	0	275
V/C Ratio(X)	0.08	0.53	0.53	0.32	0.51	0.51	0.83	0.00	0.34	0.05	0.00	0.74
Avail Cap(c_a), veh/h	363	1332	1352	353	1332	1398	128	0	270	214	0	275
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	48.7	0.0	37.6	39.9	0.0	40.2
Incr Delay (d2), s/veh	0.3	1.2	1.2	2.3	1.4	1.3	34.2	0.0	0.6	0.1	0.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.8	0.8	0.4	0.9	0.9	7.4	0.0	4.2	0.5	0.0	10.1
LnGrp Delay(d),s/veh	0.3	1.2	1.2	2.3	1.4	1.3	83.0	0.0	38.1	39.9	0.0	49.6
LnGrp LOS	A	A	A	A	A	A	F		D	D		D
Approach Vol, veh/h		1455			1504			199			213	
Approach Delay, s/veh		1.2			1.4			62.0			49.1	
Approach LOS		A			A			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		80.0		20.0		80.0		20.0
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		75.5		15.0		75.5		15.0
Max Q Clear Time (g_c+I1), s		2.0		18.0		2.0		13.2
Green Ext Time (p_c), s		5.6		0.0		4.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
1301: NW 7th Ave/SR 7 & NW 125th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	152	16	610	117	199	9	585	188	372	2252	27
Future Volume (veh/h)	29	152	16	610	117	199	9	585	188	372	2252	27
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	31	163	17	746	0	214	10	629	202	400	2422	29
Adj No. of Lanes	1	2	0	2	0	1	1	3	0	1	3	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	317	33	781	0	602	106	1388	437	518	2912	35
Arrive On Green	0.10	0.10	0.07	0.22	0.00	0.22	0.48	0.48	0.45	0.21	0.75	0.72
Sat Flow, veh/h	1774	3239	334	3548	0	1583	137	3832	1208	1774	5180	62
Grp Volume(v), veh/h	31	88	92	746	0	214	10	555	276	400	1584	867
Grp Sat Flow(s),veh/h/ln	1774	1770	1804	1774	0	1583	137	1695	1650	1774	1695	1852
Q Serve(g_s), s	1.6	4.7	4.9	20.8	0.0	9.7	5.4	10.8	11.5	13.8	31.1	31.4
Cycle Q Clear(g_c), s	1.6	4.7	4.9	20.8	0.0	9.7	16.8	10.8	11.5	13.8	31.1	31.4
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.73	1.00		0.03
Lane Grp Cap(c), veh/h	174	173	177	781	0	602	106	1228	597	518	1906	1041
V/C Ratio(X)	0.18	0.51	0.52	0.96	0.00	0.36	0.09	0.45	0.46	0.77	0.83	0.83
Avail Cap(c_a), veh/h	337	336	343	781	0	602	106	1228	597	518	1906	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.00	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	42.8	43.1	38.5	0.0	22.2	25.1	19.3	20.4	14.8	9.5	9.5
Incr Delay (d2), s/veh	0.4	1.7	1.8	20.8	0.0	0.2	1.8	1.2	2.6	6.4	4.4	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.4	4.3	4.5	18.0	0.0	7.5	0.5	9.0	9.6	12.0	21.7	24.6
LnGrp Delay(d),s/veh	41.8	44.5	44.8	59.3	0.0	22.5	26.9	20.5	23.0	21.2	13.8	17.4
LnGrp LOS	D	D	D	E		C	C	C	C	C	B	B
Approach Vol, veh/h		211			960			841			2851	
Approach Delay, s/veh		44.3			51.1			21.4			15.9	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		60.2		26.0	20.0	40.2		13.8
Change Period (Y+Rc), s		6.4		6.4	6.4	6.4		6.4
Max Green Setting (Gmax), s		44.6		19.6	13.6	24.6		16.6
Max Q Clear Time (g_c+I1), s		33.4		22.8	15.8	18.8		6.9
Green Ext Time (p_c), s		6.4		0.0	0.0	1.5		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1302: NB On-Ramp/SB Off-Ramp & NW 125th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	683	77	270	731	0	0	0	0	499	17	216
Future Volume (veh/h)	0	683	77	270	731	0	0	0	0	499	17	216
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1881	1881	0				1900	1881	1881
Adj Flow Rate, veh/h	0	751	85	297	803	0				548	19	237
Adj No. of Lanes	0	2	0	1	2	0				0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	1
Cap, veh/h	0	1446	164	462	2180	0				538	19	496
Arrive On Green	0.00	0.63	0.62	0.13	0.81	0.00				0.31	0.31	0.31
Sat Flow, veh/h	0	3354	348	1792	3668	0				1734	60	1599
Grp Volume(v), veh/h	0	391	445	297	803	0				567	0	237
Grp Sat Flow(s),veh/h/ln	0	1599	1820	1792	1787	0				1794	0	1599
Q Serve(g_s), s	0.0	13.5	13.6	8.7	6.0	0.0				31.0	0.0	12.0
Cycle Q Clear(g_c), s	0.0	13.5	13.6	8.7	6.0	0.0				31.0	0.0	12.0
Prop In Lane	0.00		0.19	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	753	857	462	2180	0				556	0	496
V/C Ratio(X)	0.00	0.52	0.52	0.64	0.37	0.00				1.02	0.00	0.48
Avail Cap(c_a), veh/h	0	753	857	553	2180	0				556	0	496
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.68	0.68	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.4	12.5	12.5	4.3	0.0				34.5	0.0	27.9
Incr Delay (d2), s/veh	0.0	1.7	1.5	0.1	0.0	0.0				43.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	9.7	10.7	5.2	3.7	0.0				39.5	0.0	9.1
LnGrp Delay(d),s/veh	0.0	14.2	14.0	12.6	4.3	0.0				77.6	0.0	28.5
LnGrp LOS		B	B	B	A					F		C
Approach Vol, veh/h		836			1100						804	
Approach Delay, s/veh		14.1			6.5						63.1	
Approach LOS		B			A						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			13.9	51.1		35.0
Change Period (Y+Rc), s		* 4.4			3.0	* 4.4		5.0
Max Green Setting (Gmax), s		* 61			16.0	* 42		30.0
Max Q Clear Time (g_c+I1), s		8.0			10.7	15.6		33.0
Green Ext Time (p_c), s		2.3			0.2	1.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	1034	0	0	875	629	67	347	413	0	0	0
Future Volume (veh/h)	208	1034	0	0	875	629	67	347	413	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1900	1845	1900			
Adj Flow Rate, veh/h	231	1149	0	0	972	699	74	386	459			
Adj No. of Lanes	1	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	0	3	0			
Cap, veh/h	265	2048	0	0	804	549	99	515	526			
Arrive On Green	0.15	0.78	0.00	0.00	0.58	0.55	0.34	0.34	0.31			
Sat Flow, veh/h	1757	3597	0	0	2202	1264	294	1536	1568			
Grp Volume(v), veh/h	231	1149	0	0	775	896	460	0	459			
Grp Sat Flow(s),veh/h/ln	1757	1752	0	0	1494	1622	1830	0	1568			
Q Serve(g_s), s	8.6	12.9	0.0	0.0	43.4	43.4	22.3	0.0	27.7			
Cycle Q Clear(g_c), s	8.6	12.9	0.0	0.0	43.4	43.4	22.3	0.0	27.7			
Prop In Lane	1.00		0.00	0.00		0.78	0.16		1.00			
Lane Grp Cap(c), veh/h	265	2048	0	0	649	704	614	0	526			
V/C Ratio(X)	0.87	0.56	0.00	0.00	1.19	1.27	0.75	0.00	0.87			
Avail Cap(c_a), veh/h	265	2048	0	0	649	704	640	0	549			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.8	6.1	0.0	0.0	21.1	22.4	29.5	0.0	32.4			
Incr Delay (d2), s/veh	16.9	0.7	0.0	0.0	101.6	133.6	4.4	0.0	13.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	10.9	9.4	0.0	0.0	64.6	81.4	17.7	0.0	20.0			
LnGrp Delay(d),s/veh	43.6	6.8	0.0	0.0	122.7	155.9	33.9	0.0	46.1			
LnGrp LOS	D	A			F	F	C		D			
Approach Vol, veh/h		1380			1671			919				
Approach Delay, s/veh		12.9			140.5			40.0				
Approach LOS		B			F			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.0	47.4		37.6		62.4		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	8.6	39.6		32.6		54.6		
Max Q Clear Time (g_c+I1), s	10.6	45.4		29.7		14.9		
Green Ext Time (p_c), s	0.0	0.0		1.5		3.7		

Intersection Summary	
HCM 2010 Ctrl Delay	72.9
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
1401: NW 7th Ave/SR 7 & NW 135th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	1245	168	0	0	0	0	456	403	441	2623	0
Future Volume (veh/h)	169	1245	168	0	0	0	0	456	403	441	2623	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1827	1900	1827	1827	0
Adj Flow Rate, veh/h	176	1297	175				0	475	420	459	2732	0
Adj No. of Lanes	1	3	1				0	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4				0	4	4	4	4	0
Cap, veh/h	531	1522	474				0	1421	664	474	3070	0
Arrive On Green	0.31	0.31	0.31				0.00	0.57	0.54	0.20	0.82	0.00
Sat Flow, veh/h	1740	4988	1553				0	3489	1553	1740	5152	0
Grp Volume(v), veh/h	176	1297	175				0	475	420	459	2732	0
Grp Sat Flow(s),veh/h/ln	1740	1663	1553				0	1663	1553	1740	1663	0
Q Serve(g_s), s	7.9	24.7	8.9				0.0	7.7	19.2	15.0	36.9	0.0
Cycle Q Clear(g_c), s	7.9	24.7	8.9				0.0	7.7	19.2	15.0	36.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	531	1522	474				0	1421	664	474	3070	0
V/C Ratio(X)	0.33	0.85	0.37				0.00	0.33	0.63	0.97	0.89	0.00
Avail Cap(c_a), veh/h	541	1551	483				0	1421	664	474	3070	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	27.1	32.9	27.5				0.0	14.1	17.8	17.2	6.9	0.0
Incr Delay (d2), s/veh	0.3	4.6	0.4				0.0	0.6	4.5	6.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.8	17.6	6.9				0.0	6.5	13.9	9.5	18.2	0.0
LnGrp Delay(d),s/veh	27.4	37.6	27.8				0.0	14.8	22.4	23.9	7.3	0.0
LnGrp LOS	C	D	C					B	C	C	A	
Approach Vol, veh/h		1648						895			3191	
Approach Delay, s/veh		35.4						18.3			9.7	
Approach LOS		D						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.0	47.2		34.8		66.2		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	12.6	40.6		29.0		59.6		
Max Q Clear Time (g_c+I1), s	17.0	21.2		26.7		38.9		
Green Ext Time (p_c), s	0.0	2.4		1.8		11.9		

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

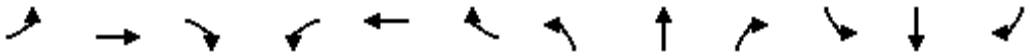
Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	1884	384	171	354
v/c Ratio	1.06	0.32	0.19	0.19
Control Delay	71.2	4.5	8.7	9.8
Queue Delay	17.3	0.0	0.0	0.0
Total Delay	88.4	4.5	8.8	9.8
Queue Length 50th (ft)	~486	9	40	50
Queue Length 95th (ft)	#582	42	78	74
Internal Link Dist (ft)	302			402
Turn Bay Length (ft)		170	190	
Base Capacity (vph)	1778	1194	893	1843
Starvation Cap Reductn	289	0	0	0
Spillback Cap Reductn	62	0	50	105
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.27	0.32	0.20	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1402: SB On-Ramp/NW 6th Ct & NW 135th St



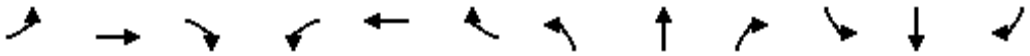
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1809	369	0	0	0	0	0	0	234	270	0
Future Volume (vph)	0	1809	369	0	0	0	0	0	0	234	270	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		0.91	0.88							0.91	0.91	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	0.99	
Satd. Flow (prot)		4940	2707							1564	3260	
Flt Permitted		1.00	1.00							0.95	0.99	
Satd. Flow (perm)		4940	2707							1564	3260	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1884	384	0	0	0	0	0	0	244	281	0
RTOR Reduction (vph)	0	0	220	0	0	0	0	0	0	18	18	0
Lane Group Flow (vph)	0	1884	164	0	0	0	0	0	0	153	336	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type		NA	Perm							custom	NA	
Protected Phases		2								4	4	
Permitted Phases			2							4		
Actuated Green, G (s)		33.2	33.2							53.2	53.2	
Effective Green, g (s)		36.0	36.0							56.0	56.0	
Actuated g/C Ratio		0.36	0.36							0.56	0.56	
Clearance Time (s)		6.8	6.8							6.8	6.8	
Vehicle Extension (s)		1.0	1.0							2.5	2.5	
Lane Grp Cap (vph)		1778	974							875	1825	
v/s Ratio Prot		c0.38								0.10	c0.10	
v/s Ratio Perm			0.06									
v/c Ratio		1.06	0.17							0.17	0.18	
Uniform Delay, d1		32.0	21.8							10.7	10.8	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		39.2	0.4							0.1	0.0	
Delay (s)		71.2	22.2							10.8	10.8	
Level of Service		E	C							B	B	
Approach Delay (s)		62.9			0.0			0.0			10.8	
Approach LOS		E			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	NBT	NBR
Lane Group Flow (vph)	957	1185	1009	305
v/c Ratio	0.91	0.57	1.64	0.89
Control Delay	14.6	1.5	323.1	48.6
Queue Delay	47.0	3.3	0.0	0.0
Total Delay	61.6	4.9	323.1	48.6
Queue Length 50th (ft)	196	18	~865	224
Queue Length 95th (ft)	m162	m17	#1094	#537
Internal Link Dist (ft)		165	421	
Turn Bay Length (ft)				
Base Capacity (vph)	1054	2062	614	344
Starvation Cap Reductn	263	755	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.21	0.91	1.64	0.89

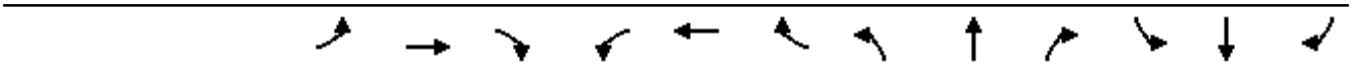
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	880	1090	0	0	0	0	0	647	562	0	0	0
Future Volume (vph)	880	1090	0	0	0	0	0	647	562	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0	4.0			
Lane Util. Factor	1.00	0.95						*0.54	*0.54			
Frt	1.00	1.00						0.95	0.85			
Flt Protected	0.95	1.00						1.00	1.00			
Satd. Flow (prot)	1719	3438						1865	831			
Flt Permitted	0.95	1.00						1.00	1.00			
Satd. Flow (perm)	1719	3438						1865	831			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	957	1185	0	0	0	0	0	703	611	0	0	0
RTOR Reduction (vph)	23	0	0	0	0	0	0	18	79	0	0	0
Lane Group Flow (vph)	934	1185	0	0	0	0	0	991	226	0	0	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	custom	NA						NA	Perm			
Protected Phases	2 7	2 7						8				
Permitted Phases	2 7								8			
Actuated Green, G (s)	57.2	57.2						29.2	29.2			
Effective Green, g (s)	60.0	60.0						32.0	32.0			
Actuated g/C Ratio	0.60	0.60						0.32	0.32			
Clearance Time (s)								6.8	6.8			
Vehicle Extension (s)								2.5	2.5			
Lane Grp Cap (vph)	1031	2062						596	265			
v/s Ratio Prot	c0.54	0.34						c0.53				
v/s Ratio Perm									0.27			
v/c Ratio	0.91	0.57						1.66	0.85			
Uniform Delay, d1	17.5	12.2						34.0	31.8			
Progression Factor	0.50	0.09						1.00	1.00			
Incremental Delay, d2	4.1	0.1						305.9	22.2			
Delay (s)	12.9	1.3						339.9	54.0			
Level of Service	B	A						F	D			
Approach Delay (s)		6.4			0.0			273.5			0.0	
Approach LOS		A			A			F			A	

Intersection Summary			
HCM 2000 Control Delay	108.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	352	1325	94	195	437	0	0	2665	212
Future Volume (veh/h)	0	0	0	352	1325	94	195	437	0	0	2665	212
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1827	1827	1827	1827	1827	0	0	1827	1900
Adj Flow Rate, veh/h				374	1410	100	207	465	0	0	2835	226
Adj No. of Lanes				1	3	1	1	3	0	0	3	0
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				4	4	4	4	4	0	0	4	4
Cap, veh/h				584	1838	521	236	2916	0	0	2127	165
Arrive On Green				0.34	0.34	0.34	0.09	0.58	0.00	0.00	0.45	0.43
Sat Flow, veh/h				1740	5481	1553	1740	5152	0	0	4885	367
Grp Volume(v), veh/h				374	1410	100	207	465	0	0	1976	1085
Grp Sat Flow(s),veh/h/ln				1740	1827	1553	1740	1663	0	0	1663	1762
Q Serve(g_s), s				18.2	23.0	4.6	7.5	4.3	0.0	0.0	45.1	45.1
Cycle Q Clear(g_c), s				18.2	23.0	4.6	7.5	4.3	0.0	0.0	45.1	45.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.21
Lane Grp Cap(c), veh/h				584	1838	521	236	2916	0	0	1498	794
V/C Ratio(X)				0.64	0.77	0.19	0.88	0.16	0.00	0.00	1.32	1.37
Avail Cap(c_a), veh/h				661	2083	590	236	2916	0	0	1498	794
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.75	0.75	0.75	0.90	0.90	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				28.1	29.7	23.6	28.0	9.5	0.0	0.0	27.5	27.7
Incr Delay (d2), s/veh				0.8	1.0	0.0	26.1	0.1	0.0	0.0	148.2	173.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				13.1	16.7	3.6	11.6	3.5	0.0	0.0	92.6	108.1
LnGrp Delay(d),s/veh				29.0	30.7	23.7	54.1	9.6	0.0	0.0	175.7	201.0
LnGrp LOS				C	C	C	D	A			F	F
Approach Vol, veh/h					1884			672			3061	
Approach Delay, s/veh					30.0			23.3			184.6	
Approach LOS					C			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.4	49.1		37.5		62.5		
Change Period (Y+Rc), s	6.4	6.4		* 6.7		6.4		
Max Green Setting (Gmax), s	7.0	38.6		* 35		51.6		
Max Q Clear Time (g_c+I1), s	9.5	47.1		25.0		6.3		
Green Ext Time (p_c), s	0.0	0.0		5.8		1.3		

Intersection Summary		
HCM 2010 Ctrl Delay		113.5
HCM 2010 LOS		F

Notes

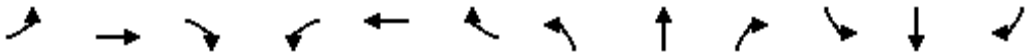
User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	316	1787	349
v/c Ratio	0.30	0.61	0.32
Control Delay	0.5	6.5	27.5
Queue Delay	1.2	3.8	0.0
Total Delay	1.6	10.3	27.5
Queue Length 50th (ft)	0	70	91
Queue Length 95th (ft)	m0	93	130
Internal Link Dist (ft)		151	338
Turn Bay Length (ft)			
Base Capacity (vph)	1055	2966	1114
Starvation Cap Reductn	513	1072	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.58	0.94	0.31

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	323	1612	0	0	0	0	0	233	88
Future Volume (vph)	0	0	0	323	1612	0	0	0	0	0	233	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.96	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1507	4755						3360	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1507	4755						3360	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	351	1752	0	0	0	0	0	253	96
RTOR Reduction (vph)	0	0	0	125	13	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	191	1774	0	0	0	0	0	335	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	
Protected Phases					2 7						8	
Permitted Phases				2 7								
Actuated Green, G (s)				64.6	64.6						32.6	
Effective Green, g (s)				66.6	66.6						35.0	
Actuated g/C Ratio				0.61	0.61						0.32	
Clearance Time (s)											6.4	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)				912	2878						1069	
v/s Ratio Prot											c0.10	
v/s Ratio Perm				0.13	0.37							
v/c Ratio				0.21	0.62						0.31	
Uniform Delay, d1				9.8	13.7						28.4	
Progression Factor				0.00	0.44						1.00	
Incremental Delay, d2				0.1	0.2						0.2	
Delay (s)				0.1	6.3						28.6	
Level of Service				A	A						C	
Approach Delay (s)		0.0			5.3			0.0			28.6	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

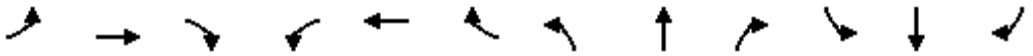
Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1482	563	1692
v/c Ratio	0.79	1.04	0.77
Control Delay	40.1	80.2	16.9
Queue Delay	0.4	0.0	11.7
Total Delay	40.5	80.2	28.6
Queue Length 50th (ft)	287	~385	385
Queue Length 95th (ft)	336	#604	470
Internal Link Dist (ft)	475		403
Turn Bay Length (ft)		225	
Base Capacity (vph)	1865	543	2265
Starvation Cap Reductn	0	0	576
Spillback Cap Reductn	87	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.83	1.04	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1406: NW 6th Ave/NW 6th Ave/NB On-Ramp & Opa-Locka Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1363	518	538	1018	0	0	0	0
Future Volume (vph)	0	0	0	0	1363	518	538	1018	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.86	1.00		0.95				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.98				
Satd. Flow (prot)					6346	1568		3445				
Flt Permitted					1.00	1.00		0.98				
Satd. Flow (perm)					6346	1568		3445				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1482	563	585	1107	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	83	0	11	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1482	480	0	1681	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.3	30.3		67.3				
Effective Green, g (s)					32.3	32.3		69.7				
Actuated g/C Ratio					0.29	0.29		0.63				
Clearance Time (s)					6.0	6.0		6.4				
Vehicle Extension (s)					1.0	1.0		3.0				
Lane Grp Cap (vph)					1863	460		2182				
v/s Ratio Prot					0.23							
v/s Ratio Perm						c0.31		0.49				
v/c Ratio					0.80	1.04		0.77				
Uniform Delay, d1					35.8	38.9		14.4				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					3.6	54.0		1.7				
Delay (s)					39.4	92.8		16.2				
Level of Service					D	F		B				
Approach Delay (s)		0.0			54.1			16.2			0.0	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
1501: NW 7th Ave/SR 7 & NW 151st St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	78	18	314	167	211	11	411	140	242	1557	38
Future Volume (veh/h)	60	78	18	314	167	211	11	411	140	242	1557	38
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	61	80	18	320	170	215	11	419	143	247	1589	39
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	160	295	64	488	602	602	189	1938	635	541	3078	76
Arrive On Green	0.10	0.10	0.08	0.19	0.33	0.32	0.52	0.52	0.50	0.06	0.61	0.59
Sat Flow, veh/h	985	2862	625	1757	1845	1568	305	3754	1230	1757	5056	124
Grp Volume(v), veh/h	61	48	50	320	170	215	11	373	189	247	1055	573
Grp Sat Flow(s),veh/h/ln	985	1752	1734	1757	1845	1568	305	1679	1628	1757	1679	1823
Q Serve(g_s), s	7.3	3.1	3.3	19.0	8.4	12.0	2.6	7.4	8.0	7.4	22.0	22.1
Cycle Q Clear(g_c), s	7.3	3.1	3.3	19.0	8.4	12.0	13.3	7.4	8.0	7.4	22.0	22.1
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.76	1.00		0.07
Lane Grp Cap(c), veh/h	160	180	179	488	602	602	189	1733	840	541	2044	1110
V/C Ratio(X)	0.38	0.27	0.28	0.66	0.28	0.36	0.06	0.22	0.23	0.46	0.52	0.52
Avail Cap(c_a), veh/h	296	423	419	496	750	728	189	1733	840	541	2044	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	50.9	51.4	36.2	30.8	27.1	20.8	16.2	16.8	13.0	13.7	13.8
Incr Delay (d2), s/veh	1.5	0.8	0.8	3.1	0.3	0.4	0.6	0.3	0.6	0.6	0.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.7	2.8	2.9	14.6	7.8	9.0	0.5	6.3	6.7	2.6	15.7	17.1
LnGrp Delay(d),s/veh	54.2	51.7	52.3	39.3	31.0	27.4	21.4	16.5	17.5	13.7	14.7	15.5
LnGrp LOS	D	D	D	D	C	C	C	B	B	B	B	B
Approach Vol, veh/h		159			705			573			1875	
Approach Delay, s/veh		52.8			33.7			16.9			14.8	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6	7	8
Phs Duration (G+Y+Rc), s		78.9		44.1	11.4	67.5	27.4	16.7
Change Period (Y+Rc), s		6.4		* 6.7	6.4	6.4	6.4	* 6.7
Max Green Setting (Gmax), s		54.6		* 47	5.0	43.6	21.6	* 27
Max Q Clear Time (g_c+I1), s		24.1		14.0	9.4	15.3	21.0	9.3
Green Ext Time (p_c), s		14.9		1.8	0.0	4.3	0.1	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	21.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1503: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 151st St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	210	0	0	194	10	176	354	118	0	0	304
Future Volume (veh/h)	181	210	0	0	194	10	176	354	118	0	0	304
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1845	1845	1845	1900	1845	1900
Adj Flow Rate, veh/h	195	226	0	0	209	11	189	381	127	0	0	327
Adj No. of Lanes	1	1	0	0	1	0	1	1	1	0	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3	3	3	3
Cap, veh/h	833	1265	0	0	1191	63	430	451	384	0	0	0
Arrive On Green	0.91	0.91	0.00	0.00	0.91	0.89	0.24	0.24	0.24	0.00	0.00	0.00
Sat Flow, veh/h	1145	1845	0	0	1737	91	1757	1845	1568		0	
Grp Volume(v), veh/h	195	226	0	0	0	220	189	381	127		0.0	
Grp Sat Flow(s),veh/h/ln	1145	1845	0	0	0	1829	1757	1845	1568			
Q Serve(g_s), s	2.7	1.5	0.0	0.0	0.0	1.5	10.5	22.6	7.7			
Cycle Q Clear(g_c), s	4.1	1.5	0.0	0.0	0.0	1.5	10.5	22.6	7.7			
Prop In Lane	1.00		0.00	0.00		0.05	1.00		1.00			
Lane Grp Cap(c), veh/h	833	1265	0	0	0	1254	430	451	384			
V/C Ratio(X)	0.23	0.18	0.00	0.00	0.00	0.18	0.44	0.84	0.33			
Avail Cap(c_a), veh/h	833	1265	0	0	0	1254	840	882	750			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	1.9	1.7	0.0	0.0	0.0	1.7	36.8	41.4	35.7			
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.0	0.0	0.3	0.5	3.3	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	1.6	1.5	0.0	0.0	0.0	1.4	8.9	17.6	6.0			
LnGrp Delay(d),s/veh	2.5	2.0	0.0	0.0	0.0	2.0	37.3	44.7	36.1			
LnGrp LOS	A	A				A	D	D	D			
Approach Vol, veh/h		421			220			697				
Approach Delay, s/veh		2.2			2.0			41.1				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		82.9		32.1		82.9		
Change Period (Y+Rc), s		* 5.6		* 4.8		* 5.6		
Max Green Setting (Gmax), s		* 18		* 54		* 18		
Max Q Clear Time (g_c+I1), s		3.5		24.6		6.1		
Green Ext Time (p_c), s		0.4		2.7		0.5		

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	403	916	634	0	0	1305
Future Volume (veh/h)	403	916	634	0	0	1305
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	0	0	1810
Adj Flow Rate, veh/h	415	0	654	0	0	1345
Adj No. of Lanes	2	1	1	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	5	5	0	0	5
Cap, veh/h	837	286	968	0	0	1839
Arrive On Green	0.25	0.00	0.53	0.00	0.00	0.53
Sat Flow, veh/h	3343	1538	1810	0	0	3619
Grp Volume(v), veh/h	415	0	654	0	0	1345
Grp Sat Flow(s),veh/h/ln	1672	1538	1810	0	0	1719
Q Serve(g_s), s	4.0	0.0	9.8	0.0	0.0	11.1
Cycle Q Clear(g_c), s	4.0	0.0	9.8	0.0	0.0	11.1
Prop In Lane	1.00	1.00		0.00	0.00	
Lane Grp Cap(c), veh/h	837	286	968	0	0	1839
V/C Ratio(X)	0.50	0.00	0.68	0.00	0.00	0.73
Avail Cap(c_a), veh/h	2422	1015	1796	0	0	3412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	6.3	0.0	0.0	6.6
Incr Delay (d2), s/veh	0.3	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	0.0	8.4	0.0	0.0	8.8
LnGrp Delay(d),s/veh	12.3	0.0	6.6	0.0	0.0	6.8
LnGrp LOS	B		A			A
Approach Vol, veh/h	415		654			1345
Approach Delay, s/veh	12.3		6.6			6.8
Approach LOS	B		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.9				23.9		13.3
Change Period (Y+Rc), s		6.4				6.4		6.4
Max Green Setting (Gmax), s		34.6				34.6		24.6
Max Q Clear Time (g_c+I1), s		11.8				13.1		6.0
Green Ext Time (p_c), s		1.6				4.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1602: NW 7th Ave/SR 7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	12	66	13	15	32	209	1288	32	22	1606	171
Future Volume (veh/h)	35	12	66	13	15	32	209	1288	32	22	1606	171
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1776	1776	1776	1776	1776	1900
Adj Flow Rate, veh/h	24	29	0	13	15	0	213	1314	0	22	1639	0
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	129	136	0	93	98	83	304	2036	888	321	1867	0
Arrive On Green	0.08	0.08	0.00	0.06	0.06	0.00	0.10	0.60	0.00	0.05	0.55	0.00
Sat Flow, veh/h	1691	1776	0	1691	1776	1509	1691	3374	1509	1691	3463	0
Grp Volume(v), veh/h	24	29	0	13	15	0	213	1314	0	22	1639	0
Grp Sat Flow(s),veh/h/ln	1691	1776	0	1691	1776	1509	1691	1687	1509	1691	1687	0
Q Serve(g_s), s	1.0	1.1	0.0	0.5	0.6	0.0	3.4	18.6	0.0	0.4	31.1	0.0
Cycle Q Clear(g_c), s	1.0	1.1	0.0	0.5	0.6	0.0	3.4	18.6	0.0	0.4	31.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	129	136	0	93	98	83	304	2036	888	321	1867	0
V/C Ratio(X)	0.19	0.21	0.00	0.14	0.15	0.00	0.70	0.65	0.00	0.07	0.88	0.00
Avail Cap(c_a), veh/h	483	507	0	483	507	431	414	4080	1803	516	4080	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.8	31.9	0.0	33.1	33.1	0.0	15.8	9.5	0.0	7.3	14.3	0.0
Incr Delay (d2), s/veh	0.5	0.6	0.0	0.5	0.5	0.0	2.5	0.1	0.0	0.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	1.0	0.0	0.5	0.6	0.0	5.0	13.4	0.0	0.3	20.7	0.0
LnGrp Delay(d),s/veh	32.3	32.5	0.0	33.6	33.7	0.0	18.4	9.6	0.0	7.4	14.8	0.0
LnGrp LOS	C	C		C	C		B	A		A	B	
Approach Vol, veh/h		53			28			1527			1661	
Approach Delay, s/veh		32.4			33.6			10.8			14.7	
Approach LOS		C			C			B			B	

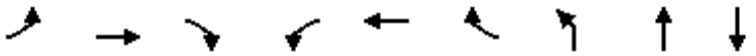
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	48.4		9.6	11.2	44.7		8.1
Change Period (Y+Rc), s	5.7	* 5.1		5.0	5.7	* 5.1		5.0
Max Green Setting (Gmax), s	10.3	* 88		20.0	10.3	* 88		20.0
Max Q Clear Time (g_c+I1), s	2.4	20.6		3.1	5.4	33.1		2.6
Green Ext Time (p_c), s	0.0	4.6		0.1	0.2	6.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

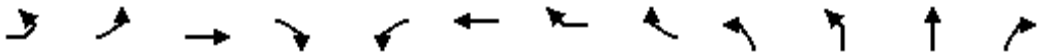


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL	NBT	SBT
Lane Group Flow (vph)	979	2925	1024	52	2962	98	806	257	249
v/c Ratio	1.38	0.89	0.87	0.44	1.23	0.07	2.88	0.30	1.68
Control Delay	227.0	33.6	24.3	41.0	150.1	0.1	876.8	60.6	380.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	227.0	33.6	24.3	41.0	150.1	0.1	876.8	60.6	380.6
Queue Length 50th (ft)	~823	1107	671	19	~1848	0	~1763	142	~474
Queue Length 95th (ft)	#962	1226	1031	66	#1898	0	#2034	189	#676
Internal Link Dist (ft)		343			1250			512	496
Turn Bay Length (ft)	230		290	200		110	230		
Base Capacity (vph)	710	3297	1182	367	2402	1362	280	862	148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.89	0.87	0.14	1.23	0.07	2.88	0.30	1.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	16	914	2779	973	49	2541	262	104	551	215	218	27
Future Volume (vph)	16	914	2779	973	49	2541	262	104	551	215	218	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.86		0.86		1.00	0.95	
Frt		1.00	1.00	0.85	1.00	0.99		0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		3433	5085	1583	1770	4736		1362		1770	3481	
Flt Permitted		0.04	1.00	1.00	0.04	1.00		1.00		0.19	1.00	
Satd. Flow (perm)		137	5085	1583	74	4736		1362		362	3481	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	962	2925	1024	52	2675	276	109	580	226	229	28
RTOR Reduction (vph)	0	0	0	156	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	979	2925	868	52	2962	0	98	0	806	252	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA		Free	pm+pt	pm+pt	NA	
Protected Phases	1	1	6		5	2			7	7	4	
Permitted Phases	6	6		6	2			Free	4	4		
Actuated Green, G (s)		141.0	128.1	128.1	107.9	100.0		199.0		46.1	46.1	
Effective Green, g (s)		142.4	129.1	129.1	109.9	101.0		199.0		47.6	49.0	
Actuated g/C Ratio		0.72	0.65	0.65	0.55	0.51		1.00		0.24	0.25	
Clearance Time (s)		5.4	5.0	5.0	5.0	5.0				5.5	6.9	
Vehicle Extension (s)		4.5	1.0	1.0	3.0	1.0				3.5	2.5	
Lane Grp Cap (vph)		710	3298	1026	116	2403		1362		277	857	
v/s Ratio Prot		c0.26	0.58		0.02	0.63				c0.39	0.07	
v/s Ratio Perm		c0.73		0.55	0.23			0.07		c0.30		
v/c Ratio		1.38	0.89	0.85	0.45	1.23		0.07		2.91	0.29	
Uniform Delay, d1		73.1	28.9	27.2	36.5	49.0		0.0		69.7	61.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		179.3	3.2	6.3	2.7	108.5		0.1		869.2	0.1	
Delay (s)		252.4	32.1	33.5	39.2	157.5		0.1		938.8	61.1	
Level of Service		F	C	C	D	F		A		F	E	
Approach Delay (s)			76.1			150.6					726.6	
Approach LOS			E			F					F	

Intersection Summary			
HCM 2000 Control Delay	184.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.80		
Actuated Cycle Length (s)	199.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	152.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	9	207	21
Future Volume (vph)	9	207	21
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	4.0		
Lane Util. Factor	1.00		
Frt	0.87		
Flt Protected	1.00		
Satd. Flow (prot)	1620		
Flt Permitted	1.00		
Satd. Flow (perm)	1620		
Peak-hour factor, PHF	0.95	0.95	0.95
Adj. Flow (vph)	9	218	22
RTOR Reduction (vph)	2	0	0
Lane Group Flow (vph)	247	0	0
Turn Type	NA		
Protected Phases	8		
Permitted Phases			
Actuated Green, G (s)	15.1		
Effective Green, g (s)	18.0		
Actuated g/C Ratio	0.09		
Clearance Time (s)	6.9		
Vehicle Extension (s)	2.5		
Lane Grp Cap (vph)	146		
v/s Ratio Prot	0.15		
v/s Ratio Perm			
v/c Ratio	1.69		
Uniform Delay, d1	90.5		
Progression Factor	1.00		
Incremental Delay, d2	339.5		
Delay (s)	430.0		
Level of Service	F		
Approach Delay (s)	430.0		
Approach LOS	F		

Intersection Summary

HCM 2010 Signalized Intersection Summary
1604: N Miami Ave & NW 167th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	434	2195	101	105	2402	48	270	141	73	100	148	215
Future Volume (veh/h)	434	2195	101	105	2402	48	270	141	73	100	148	215
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	447	2263	104	108	2476	49	278	145	75	103	153	222
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	2668	122	172	2488	49	301	273	141	279	106	154
Arrive On Green	0.13	0.71	0.70	0.07	0.64	0.64	0.14	0.24	0.22	0.06	0.15	0.14
Sat Flow, veh/h	1774	4985	228	1774	5134	101	1774	1158	599	1774	688	998
Grp Volume(v), veh/h	447	1535	832	108	1632	893	278	0	220	103	0	375
Grp Sat Flow(s),veh/h/ln	1774	1695	1823	1774	1695	1845	1774	0	1757	1774	0	1687
Q Serve(g_s), s	13.0	42.6	43.6	4.0	61.9	62.7	17.2	0.0	14.3	6.5	0.0	20.0
Cycle Q Clear(g_c), s	13.0	42.6	43.6	4.0	61.9	62.7	17.2	0.0	14.3	6.5	0.0	20.0
Prop In Lane	1.00		0.12	1.00		0.05	1.00		0.34	1.00		0.59
Lane Grp Cap(c), veh/h	233	1815	976	172	1643	894	301	0	414	279	0	259
V/C Ratio(X)	1.92	0.85	0.85	0.63	0.99	1.00	0.92	0.00	0.53	0.37	0.00	1.45
Avail Cap(c_a), veh/h	233	1815	976	262	1643	894	301	0	414	425	0	259
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.34	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.3	14.8	15.0	26.3	22.9	23.1	40.5	0.0	43.6	45.2	0.0	55.4
Incr Delay (d2), s/veh	419.5	1.8	3.5	1.4	20.7	29.8	32.1	0.0	1.0	0.3	0.0	220.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	63.8	24.2	26.9	3.6	42.8	48.8	16.5	0.0	11.4	5.8	0.0	45.4
LnGrp Delay(d),s/veh	461.8	16.6	18.5	27.7	43.6	52.9	72.6	0.0	44.7	45.5	0.0	276.2
LnGrp LOS	F	B	B	C	D	D	E		D	D		F
Approach Vol, veh/h		2814			2633			498			478	
Approach Delay, s/veh		87.9			46.1			60.3			226.5	
Approach LOS		F			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	67.0	11.4	34.6	10.4	73.6	22.0	24.0
Change Period (Y+Rc), s	4.5	* 4.9	3.0	5.5	4.5	* 4.9	3.0	5.5
Max Green Setting (Gmax), s	12.5	* 62	19.0	18.5	12.5	* 62	19.0	18.5
Max Q Clear Time (g_c+I1), s	15.0	64.7	8.5	16.3	6.0	45.6	19.2	22.0
Green Ext Time (p_c), s	0.0	0.0	0.1	0.2	0.1	7.6	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	78.9
HCM 2010 LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	NBL	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	68	370	318	211	23	923	53	892	161
v/c Ratio	0.41	0.75	0.48	0.91	0.13	1.22dr	0.44	0.77	0.10
Control Delay	63.1	53.5	8.4	90.5	24.2	36.0	48.0	41.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	53.5	8.4	90.5	24.2	36.0	48.0	41.9	0.1
Queue Length 50th (ft)	52	279	8	165	11	324	35	351	0
Queue Length 95th (ft)	111	#531	97	#386	29	413	83	447	0
Internal Link Dist (ft)	585	329		410		390		683	
Turn Bay Length (ft)					190				
Base Capacity (vph)	214	495	658	233	263	1807	212	2052	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.75	0.48	0.91	0.09	0.51	0.25	0.43	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	NBL	NBR	SEL	SET	SER	SER2	NWL	NWT	NWR	NEL	NET	NER
Lane Configurations												
Traffic Volume (vph)	14	49	287	53	13	280	115	30	49	21	155	549
Future Volume (vph)	14	49	287	53	13	280	115	30	49	21	155	549
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00			1.00		1.00	0.95	
Frt	0.89			1.00	0.85			0.97		1.00	0.88	
Flt Protected	0.99			0.96	1.00			0.97		0.95	1.00	
Satd. Flow (prot)	1649			1787	1583			1748		1770	3105	
Flt Permitted	0.99			0.96	1.00			0.97		0.10	1.00	
Satd. Flow (perm)	1649			1787	1583			1748		186	3105	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	53	312	58	14	304	125	33	53	23	168	597
RTOR Reduction (vph)	0	0	0	0	222	0	0	7	0	0	11	0
Lane Group Flow (vph)	68	0	0	370	96	0	0	204	0	23	912	0
Turn Type	Prot		Split	NA	Prot		Split	NA		pm+pt	NA	
Protected Phases	4		8	8	8		7	7		1	6	
Permitted Phases										6		
Actuated Green, G (s)	8.1			30.9	30.9			13.4		46.3	46.3	
Effective Green, g (s)	10.1			32.9	32.9			15.4		48.3	48.3	
Actuated g/C Ratio	0.08			0.27	0.27			0.13		0.39	0.39	
Clearance Time (s)	6.0			6.0	6.0			6.0		6.0	6.0	
Vehicle Extension (s)	2.5			2.5	2.5			2.5		2.0	1.0	
Lane Grp Cap (vph)	135			479	424			219		141	1222	
v/s Ratio Prot	c0.04			c0.21	0.06			c0.12		0.01	c0.29	
v/s Ratio Perm										0.06		
v/c Ratio	0.50			0.77	0.23			0.93		0.16	1.22dr	
Uniform Delay, d1	53.9			41.4	35.0			53.1		26.6	31.9	
Progression Factor	1.00			1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	2.1			7.3	0.2			42.0		0.2	2.2	
Delay (s)	56.0			48.7	35.2			95.1		26.7	34.2	
Level of Service	E			D	D			F		C	C	
Approach Delay (s)	56.0			42.5				95.1			34.0	
Approach LOS	E			D				F			C	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	122.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	NER2	SWL2	SWL	SWT	SWR
Lane Configurations					
Traffic Volume (vph)	145	35	14	821	148
Future Volume (vph)	145	35	14	821	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0
Lane Util. Factor			1.00	0.95	1.00
Frt			1.00	1.00	0.85
Flt Protected			0.95	1.00	1.00
Satd. Flow (prot)			1770	3539	1583
Flt Permitted			0.20	1.00	1.00
Satd. Flow (perm)			366	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	38	15	892	161
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	0	53	892	161
Turn Type		pm+pt	Perm	NA	Free
Protected Phases		5		2	
Permitted Phases		2	2		Free
Actuated Green, G (s)			37.0	37.0	122.7
Effective Green, g (s)			39.0	39.0	122.7
Actuated g/C Ratio			0.32	0.32	1.00
Clearance Time (s)			6.0	6.0	
Vehicle Extension (s)			1.0	1.0	
Lane Grp Cap (vph)			116	1124	1583
v/s Ratio Prot				0.25	
v/s Ratio Perm			0.14		0.10
v/c Ratio			0.46	0.79	0.10
Uniform Delay, d1			33.4	38.2	0.0
Progression Factor			1.00	1.00	1.00
Incremental Delay, d2			1.0	3.7	0.1
Delay (s)			34.4	41.9	0.1
Level of Service			C	D	A
Approach Delay (s)				35.4	
Approach LOS				D	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	2302	18	91	1310	241	16	5	89	174	9	93
Future Volume (veh/h)	97	2302	18	91	1310	241	16	5	89	174	9	93
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	105	2502	20	99	1424	262	17	5	97	196	0	101
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	2	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	274	3098	25	187	2570	472	181	8	154	359	0	261
Arrive On Green	0.06	0.61	0.59	0.06	0.61	0.59	0.10	0.10	0.08	0.10	0.00	0.10
Sat Flow, veh/h	1740	5104	41	1740	4236	778	1740	77	1488	3480	0	1553
Grp Volume(v), veh/h	105	1629	893	99	1117	569	17	0	102	196	0	101
Grp Sat Flow(s),veh/h/ln	1740	1663	1820	1740	1663	1690	1740	0	1564	1740	0	1553
Q Serve(g_s), s	2.7	47.2	47.4	2.5	24.9	25.3	1.1	0.0	7.9	6.7	0.0	7.2
Cycle Q Clear(g_c), s	2.7	47.2	47.4	2.5	24.9	25.3	1.1	0.0	7.9	6.7	0.0	7.2
Prop In Lane	1.00		0.02	1.00		0.46	1.00		0.95	1.00		1.00
Lane Grp Cap(c), veh/h	274	2018	1105	187	2018	1025	181	0	162	359	0	261
V/C Ratio(X)	0.38	0.81	0.81	0.53	0.55	0.55	0.09	0.00	0.63	0.55	0.00	0.39
Avail Cap(c_a), veh/h	340	2018	1105	253	2018	1025	195	0	175	557	0	349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.48	0.48	0.48	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.6	18.9	19.0	26.4	14.6	15.0	50.7	0.0	55.2	53.3	0.0	46.3
Incr Delay (d2), s/veh	0.3	3.6	6.4	0.4	0.5	1.0	0.2	0.0	5.4	1.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	30.3	33.8	3.7	15.3	16.1	1.0	0.0	6.6	5.9	0.0	5.7
LnGrp Delay(d),s/veh	11.9	22.5	25.4	26.8	15.1	16.0	50.9	0.0	60.6	54.2	0.0	47.0
LnGrp LOS	B	C	C	C	B	B	D		E	D		D
Approach Vol, veh/h		2627			1785			119			297	
Approach Delay, s/veh		23.1			16.0			59.2			51.8	
Approach LOS		C			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.3	79.8		17.0	11.2	79.9		16.9
Change Period (Y+Rc), s	6.4	* 6.6		* 7.2	6.4	* 6.6		7.2
Max Green Setting (Gmax), s	9.6	* 60		* 11	9.6	* 60		16.8
Max Q Clear Time (g_c+I1), s	4.7	27.3		9.9	4.5	49.4		9.2
Green Ext Time (p_c), s	0.0	5.6		0.0	0.0	6.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1702: NE 6th Ave/SB Ramps & Miami Gardens Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	1234	1320	94	688	639	735	80	507	340	393	264
Future Volume (veh/h)	46	1234	1320	94	688	639	735	80	507	340	393	264
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	48	1299	0	99	724	0	774	0	590	358	414	0
Adj No. of Lanes	1	2	1	1	2	1	2	0	2	2	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	371	1027	658	154	1597	680	653	0	783	464	369	314
Arrive On Green	0.06	0.59	0.00	0.08	0.61	0.00	0.19	0.00	0.25	0.14	0.20	0.00
Sat Flow, veh/h	1757	2324	1568	1757	3505	1568	3514	0	3136	3408	1845	1568
Grp Volume(v), veh/h	48	1299	0	99	724	0	774	0	590	358	414	0
Grp Sat Flow(s),veh/h/ln	1757	1162	1568	1757	1752	1568	1757	0	1568	1704	1845	1568
Q Serve(g_s), s	2.0	61.9	0.0	4.2	15.7	0.0	26.0	0.0	24.3	14.2	28.0	0.0
Cycle Q Clear(g_c), s	2.0	61.9	0.0	4.2	15.7	0.0	26.0	0.0	24.3	14.2	28.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	1027	658	154	1597	680	653	0	783	464	369	314
V/C Ratio(X)	0.13	1.26	0.00	0.64	0.45	0.00	1.19	0.00	0.75	0.77	1.12	0.00
Avail Cap(c_a), veh/h	431	1027	658	189	1597	680	653	0	783	633	369	314
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	0.00	0.23	0.23	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.0	28.9	0.0	31.7	18.1	0.0	57.0	0.0	48.5	58.4	56.0	0.0
Incr Delay (d2), s/veh	0.0	122.4	0.0	0.6	0.2	0.0	98.7	0.0	4.0	2.6	84.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	66.7	0.0	3.2	9.7	0.0	38.8	0.0	16.4	11.2	41.2	0.0
LnGrp Delay(d),s/veh	20.0	151.3	0.0	32.3	18.3	0.0	155.7	0.0	52.5	61.0	140.2	0.0
LnGrp LOS	C	F		C	B		F		D	E	F	
Approach Vol, veh/h		1347			823			1364			772	
Approach Delay, s/veh		146.6			20.0			111.1			103.5	
Approach LOS		F			C			F			F	

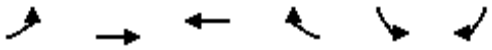
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	67.8	23.1	38.9	12.1	65.9	30.0	32.0
Change Period (Y+Rc), s	6.0	7.1	6.4	* 6.6	6.0	7.1	6.4	* 6.6
Max Green Setting (Gmax), s	9.0	55.9	23.6	* 25	9.0	55.9	23.6	* 25
Max Q Clear Time (g_c+I1), s	4.0	17.7	16.2	26.3	6.2	63.9	28.0	30.0
Green Ext Time (p_c), s	0.0	2.1	0.5	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	103.4
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



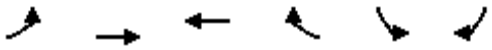
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	706	1547	1392	419	935	101
v/c Ratio	0.80	0.44	1.00	0.27	1.07	0.06
Control Delay	45.6	0.0	67.0	0.4	99.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	0.0	67.0	0.4	99.7	0.1
Queue Length 50th (ft)	319	0	~708	0	~485	0
Queue Length 95th (ft)	m285	m0	#877	0	#617	0
Internal Link Dist (ft)		851	430		520	
Turn Bay Length (ft)	415			400		240
Base Capacity (vph)	971	3505	1387	1568	874	1568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.44	1.00	0.27	1.07	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	685	1501	1350	406	907	98
Future Volume (vph)	685	1501	1350	406	907	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3400	3505	3505	1568	3400	1568
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3400	3505	3505	1568	3400	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	706	1547	1392	419	935	101
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	706	1547	1392	419	935	101
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	1	6 8!	2		4!	
Permitted Phases				Free		Free
Actuated Green, G (s)	34.2	140.0	53.0	140.0	34.0	140.0
Effective Green, g (s)	36.6	140.0	55.4	140.0	36.0	140.0
Actuated g/C Ratio	0.26	1.00	0.40	1.00	0.26	1.00
Clearance Time (s)	6.4		6.4		6.0	
Vehicle Extension (s)	3.5		1.0		3.0	
Lane Grp Cap (vph)	888	3505	1386	1568	874	1568
v/s Ratio Prot	c0.21	0.44	c0.40		c0.28	
v/s Ratio Perm				0.27		0.06
v/c Ratio	0.80	0.44	1.00	0.27	1.07	0.06
Uniform Delay, d1	48.2	0.0	42.3	0.0	52.0	0.0
Progression Factor	0.94	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	25.2	0.4	50.9	0.1
Delay (s)	45.6	0.0	67.5	0.4	102.9	0.1
Level of Service	D	A	E	A	F	A
Approach Delay (s)		14.3	52.0		92.9	
Approach LOS		B	D		F	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

HCM 2010 Signalized Intersection Summary
1801: NE 205th Terrace/NE 16th Ave & Ives Dairy Rd

2045 No Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	2454	58	217	1564	129	18	0	56	109	3	28
Future Volume (veh/h)	27	2454	58	217	1564	129	18	0	56	109	3	28
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	31	2821	67	249	1798	148	21	0	64	125	3	32
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	224	3201	75	262	3410	280	139	130	235	237	17	185
Arrive On Green	0.02	0.84	0.82	0.14	0.96	0.93	0.01	0.00	0.05	0.07	0.13	0.11
Sat Flow, veh/h	1757	5062	119	1757	4744	389	1757	1845	1568	1757	136	1452
Grp Volume(v), veh/h	31	1864	1024	249	1271	675	21	0	64	125	0	35
Grp Sat Flow(s),veh/h/ln	1757	1679	1824	1757	1679	1776	1757	1845	1568	1757	0	1588
Q Serve(g_s), s	0.9	43.9	46.0	12.5	4.3	4.8	1.5	0.0	4.7	8.7	0.0	2.6
Cycle Q Clear(g_c), s	0.9	43.9	46.0	12.5	4.3	4.8	1.5	0.0	4.7	8.7	0.0	2.6
Prop In Lane	1.00		0.07	1.00		0.22	1.00		1.00	1.00		0.91
Lane Grp Cap(c), veh/h	224	2123	1153	262	2414	1277	139	130	235	237	0	202
V/C Ratio(X)	0.14	0.88	0.89	0.95	0.53	0.53	0.15	0.00	0.27	0.53	0.00	0.17
Avail Cap(c_a), veh/h	435	2123	1153	321	2414	1277	238	199	293	237	0	202
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.2	7.3	7.5	41.0	0.9	1.0	58.4	0.0	49.0	53.0	0.0	51.6
Incr Delay (d2), s/veh	0.1	5.5	10.3	27.1	0.6	1.2	0.2	0.0	0.5	1.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	28.3	33.4	15.5	3.2	4.4	1.3	0.0	3.7	7.7	0.0	2.1
LnGrp Delay(d),s/veh	9.3	12.8	17.8	68.1	1.5	2.2	58.6	0.0	49.4	54.1	0.0	51.9
LnGrp LOS	A	B	B	E	A	A	E		D	D		D
Approach Vol, veh/h		2919			2195			85			160	
Approach Delay, s/veh		14.5			9.3			51.7			53.6	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	97.5	13.0	13.2	17.6	86.2	5.7	20.5
Change Period (Y+Rc), s	3.0	6.1	3.0	* 6.3	3.0	6.1	3.0	* 6.3
Max Green Setting (Gmax), s	19.0	70.9	10.0	* 12	19.0	70.9	10.0	* 12
Max Q Clear Time (g_c+I1), s	2.9	6.8	10.7	6.7	14.5	48.0	3.5	4.6
Green Ext Time (p_c), s	0.0	40.2	0.0	0.1	0.2	19.0	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1802: SB On-Ramp/SB Off-Ramp & Ives Dairy Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1823	655	608	1360	0	0	0	0	1327	0	463
Future Volume (veh/h)	0	1823	655	608	1360	0	0	0	0	1327	0	463
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	2026	0	676	1511	0				1474	0	0
Adj No. of Lanes	0	5	1	2	2	0				3	0	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2990	614	733	2235	0				1621	0	491
Arrive On Green	0.00	0.53	0.00	0.28	0.84	0.00				0.32	0.00	0.00
Sat Flow, veh/h	0	7898	1583	3442	3632	0				5003	0	1583
Grp Volume(v), veh/h	0	2026	0	676	1511	0				1474	0	0
Grp Sat Flow(s),veh/h/ln	0	1509	1583	1721	1770	0				1668	0	1583
Q Serve(g_s), s	0.0	35.6	0.0	34.3	28.5	0.0				50.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	35.6	0.0	34.3	28.5	0.0				50.8	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2990	614	733	2235	0				1621	0	491
V/C Ratio(X)	0.00	0.68	0.00	0.92	0.68	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	2990	614	784	2235	0				1834	0	559
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.42	0.00	0.81	0.81	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.1	0.0	63.1	7.6	0.0				58.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	12.9	1.3	0.0				6.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	18.9	0.0	23.8	19.4	0.0				32.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	34.6	0.0	76.0	8.9	0.0				64.5	0.0	0.0
LnGrp LOS		C		E	A					E		
Approach Vol, veh/h		2026			2187						1474	
Approach Delay, s/veh		34.6			29.7						64.5	
Approach LOS		C			C						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		117.7			42.3	75.4		62.3
Change Period (Y+Rc), s		5.5			* 5.4	5.5		6.5
Max Green Setting (Gmax), s		104.5			* 40	59.5		63.5
Max Q Clear Time (g_c+I1), s		30.5			36.3	37.6		52.8
Green Ext Time (p_c), s		25.1			0.6	14.5		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1803: NB Off-Ramp/NB On-Ramp & Ives Dairy Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	636	2470	0	0	1751	0	274	0	101	0	0	0
Future Volume (veh/h)	636	2470	0	0	1751	0	274	0	101	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1827	1827	0	0	1827	0	1827	0	1827			
Adj Flow Rate, veh/h	691	2685	0	0	1903	0	298	0	0			
Adj No. of Lanes	2	3	0	0	4	0	2	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96			
Percent Heavy Veh, %	4	4	0	0	4	0	4	0	4			
Cap, veh/h	1615	4205	0	0	2146	0	379	0	174			
Arrive On Green	0.64	1.00	0.00	0.00	0.45	0.00	0.11	0.00	0.00			
Sat Flow, veh/h	3375	5152	0	0	6796	0	3375	0	1553			
Grp Volume(v), veh/h	691	2685	0	0	1903	0	298	0	0			
Grp Sat Flow(s),veh/h/ln	1688	1663	0	0	1571	0	1688	0	1553			
Q Serve(g_s), s	18.4	0.0	0.0	0.0	49.8	0.0	15.5	0.0	0.0			
Cycle Q Clear(g_c), s	18.4	0.0	0.0	0.0	49.8	0.0	15.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	1615	4205	0	0	2146	0	379	0	174			
V/C Ratio(X)	0.43	0.64	0.00	0.00	0.89	0.00	0.79	0.00	0.00			
Avail Cap(c_a), veh/h	1615	4205	0	0	2898	0	506	0	233			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.53	0.53	0.00	0.00	1.00	0.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	20.4	0.0	0.0	0.0	45.9	0.0	77.8	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	5.9	0.0	4.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	11.9	0.3	0.0	0.0	30.1	0.0	11.9	0.0	0.0			
LnGrp Delay(d),s/veh	20.5	0.4	0.0	0.0	51.8	0.0	81.8	0.0	0.0			
LnGrp LOS	C	A			D		F					
Approach Vol, veh/h		3376			1903			298				
Approach Delay, s/veh		4.5			51.8			81.8				
Approach LOS		A			D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	90.3	65.5		24.2		155.8		
Change Period (Y+Rc), s	6.1	* 6.1		6.4		6.1		
Max Green Setting (Gmax), s	56.1	* 81		24.6		142.9		
Max Q Clear Time (g_c+I1), s	20.4	51.8		17.5		2.0		
Green Ext Time (p_c), s	18.5	7.6		0.4		25.0		

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1804: Highland Lakes Blvd & Ives Dairy Rd

2045 No Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	2479	1035	49	2424	16	832	71	23	11	90	473
Future Volume (veh/h)	390	2479	1035	49	2424	16	832	71	23	11	90	473
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1900	1881	1881	1900	1881	1881	1881
Adj Flow Rate, veh/h	394	2504	0	49	2448	16	732	224	23	11	91	478
Adj No. of Lanes	1	3	1	1	3	0	2	1	0	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	193	3038	925	93	2790	18	717	336	34	197	207	279
Arrive On Green	0.08	0.59	0.00	0.02	0.53	0.52	0.20	0.20	0.19	0.11	0.11	0.09
Sat Flow, veh/h	1792	5136	1599	1792	5265	34	3583	1678	172	1792	1881	1599
Grp Volume(v), veh/h	394	2504	0	49	1591	873	732	0	247	11	91	478
Grp Sat Flow(s),veh/h/ln	1792	1712	1599	1792	1712	1875	1792	0	1851	1792	1881	1599
Q Serve(g_s), s	16.0	77.7	0.0	2.6	81.6	81.9	40.0	0.0	24.7	1.1	9.0	18.9
Cycle Q Clear(g_c), s	16.0	77.7	0.0	2.6	81.6	81.9	40.0	0.0	24.7	1.1	9.0	18.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	193	3038	925	93	1815	994	717	0	370	197	207	279
V/C Ratio(X)	2.04	0.82	0.00	0.53	0.88	0.88	1.02	0.00	0.67	0.06	0.44	1.71
Avail Cap(c_a), veh/h	193	3038	925	105	1815	994	717	0	370	197	207	279
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.6	32.5	0.0	39.7	41.3	41.3	80.0	0.0	74.0	79.7	83.2	82.6
Incr Delay (d2), s/veh	484.5	2.7	0.0	1.7	6.3	10.9	39.1	0.0	4.2	0.1	1.1	335.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	66.1	47.4	0.0	2.6	50.4	56.2	42.7	0.0	19.0	1.0	8.3	74.6
LnGrp Delay(d),s/veh	553.0	35.2	0.0	41.4	47.6	52.2	119.1	0.0	78.1	79.8	84.3	418.3
LnGrp LOS	F	D		D	D	D	F		E	E	F	F
Approach Vol, veh/h		2898			2513			979			580	
Approach Delay, s/veh		105.6			49.1			108.8			359.4	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	110.0		44.0	7.7	122.3		26.0
Change Period (Y+Rc), s	3.0	6.6		6.1	3.0	6.6		6.1
Max Green Setting (Gmax), s	17.0	103.4		37.9	6.0	114.4		19.9
Max Q Clear Time (g_c+I1), s	18.0	83.9		42.0	4.6	79.7		20.9
Green Ext Time (p_c), s	0.0	17.2		0.0	0.0	28.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	106.8
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Part 2
PM Peak Period

HCM 2010 Signalized Intersection Summary
1101: NW 7th Ave/SR 7 & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	381	1051	90	101	1161	230	348	2212	188	219	648	221
Future Volume (veh/h)	381	1051	90	101	1161	230	348	2212	188	219	648	221
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	410	1130	97	109	1248	247	374	2378	202	235	697	238
Adj No. of Lanes	1	3	0	1	3	0	1	3	0	1	3	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	230	1105	95	179	1177	233	340	1454	122	248	1144	385
Arrive On Green	0.09	0.31	0.31	0.06	0.28	0.28	0.13	0.41	0.41	0.13	0.41	0.41
Sat Flow, veh/h	1757	3586	308	1757	4219	835	1757	4736	396	1757	3726	1255
Grp Volume(v), veh/h	410	663	564	109	993	502	374	1675	905	235	627	308
Grp Sat Flow(s),veh/h/ln	1757	1051	1790	1757	1679	1697	1757	1679	1775	1757	1679	1623
Q Serve(g_s), s	9.0	30.8	30.8	4.4	27.9	27.9	10.0	30.7	30.7	9.3	14.7	15.0
Cycle Q Clear(g_c), s	9.0	30.8	30.8	4.4	27.9	27.9	10.0	30.7	30.7	9.3	14.7	15.0
Prop In Lane	1.00		0.17	1.00		0.49	1.00		0.22	1.00		0.77
Lane Grp Cap(c), veh/h	230	648	552	179	937	474	340	1031	545	248	1031	498
V/C Ratio(X)	1.78	1.02	1.02	0.61	1.06	1.06	1.10	1.62	1.66	0.95	0.61	0.62
Avail Cap(c_a), veh/h	230	648	552	230	937	474	340	1031	545	248	1031	498
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	34.6	34.6	27.1	36.1	36.1	28.9	29.6	29.6	24.1	24.9	24.9
Incr Delay (d2), s/veh	368.8	41.2	44.3	1.0	43.6	53.7	78.0	285.6	305.9	42.7	2.7	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	50.6	22.7	39.5	3.9	33.4	36.1	21.4	99.0	110.2	11.9	11.5	11.9
LnGrp Delay(d),s/veh	396.5	75.7	78.9	28.1	79.7	89.7	106.9	315.2	335.5	66.9	27.5	30.6
LnGrp LOS	F	F	F	C	F	F	F	F	F	E	C	C
Approach Vol, veh/h		1637			1604			2954			1170	
Approach Delay, s/veh		157.2			79.3			295.0			36.2	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	37.0	11.1	36.9	15.0	37.0	14.0	34.0
Change Period (Y+Rc), s	5.0	6.3	5.0	* 6.1	5.0	6.3	5.0	* 6.1
Max Green Setting (Gmax), s	10.0	30.7	9.0	* 28	10.0	30.7	9.0	* 28
Max Q Clear Time (g_c+I1), s	12.0	17.0	6.4	32.8	11.3	32.7	11.0	29.9
Green Ext Time (p_c), s	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	176.3
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1102: SB On-Ramp/SB Off-Ramp & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1098	381	402	979	0	0	0	0	369	1	434
Future Volume (veh/h)	0	1098	381	402	979	0	0	0	0	369	1	434
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1168	0	428	1041	0				393	1	462
Adj No. of Lanes	0	2	1	1	2	0				0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1868	934	532	2548	0				319	1	285
Arrive On Green	0.00	1.00	0.00	0.20	1.00	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	3446	1583	1774	3632	0				1770	5	1583
Grp Volume(v), veh/h	0	1168	0	428	1041	0				394	0	462
Grp Sat Flow(s),veh/h/ln	0	1583	1583	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	0.0	0.0	10.0	0.0	0.0				18.0	0.0	18.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	10.0	0.0	0.0				18.0	0.0	18.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1868	934	532	2548	0				319	0	285
V/C Ratio(X)	0.00	0.63	0.00	0.80	0.41	0.00				1.23	0.00	1.62
Avail Cap(c_a), veh/h	0	1868	934	532	2548	0				319	0	285
HCM Platoon Ratio	1.00	2.00	2.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	6.2	0.0	0.0				41.0	0.0	41.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.8	0.0	0.0				129.4	0.0	295.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	4.0	0.0	0.0				36.5	0.0	56.2
LnGrp Delay(d),s/veh	0.0	0.1	0.0	7.0	0.0	0.0				170.4	0.0	336.1
LnGrp LOS		A		A	A					F		F
Approach Vol, veh/h		1168			1469						856	
Approach Delay, s/veh		0.1			2.1						259.8	
Approach LOS		A			A						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		77.0			13.0	64.0		23.0
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		72.0			10.0	59.0		18.0
Max Q Clear Time (g_c+I1), s		2.0			12.0	2.0		20.0
Green Ext Time (p_c), s		3.2			0.0	3.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	64.6
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
1103: NW 6th Ave/NB Off-Ramp/NB On-Ramp & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	575	943	0	0	999	394	485	53	221	0	0	0
Future Volume (veh/h)	575	943	0	0	999	394	485	53	221	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	599	982	0	0	1041	410	544	0	230			
Adj No. of Lanes	1	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	385	2526	0	0	1706	906	671	0	299			
Arrive On Green	0.10	0.71	0.00	0.00	0.57	0.57	0.19	0.00	0.19			
Sat Flow, veh/h	1792	3668	0	0	3386	1599	3583	0	1599			
Grp Volume(v), veh/h	599	982	0	0	1041	410	544	0	230			
Grp Sat Flow(s),veh/h/ln	1792	1787	0	0	1505	1599	1792	0	1599			
Q Serve(g_s), s	10.5	11.1	0.0	0.0	22.9	14.9	14.5	0.0	13.7			
Cycle Q Clear(g_c), s	10.5	11.1	0.0	0.0	22.9	14.9	14.5	0.0	13.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	385	2526	0	0	1706	906	671	0	299			
V/C Ratio(X)	1.56	0.39	0.00	0.00	0.61	0.45	0.81	0.00	0.77			
Avail Cap(c_a), veh/h	385	2526	0	0	1706	906	1777	0	793			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.54	0.54	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.8	5.9	0.0	0.0	14.3	12.6	38.9	0.0	38.6			
Incr Delay (d2), s/veh	257.5	0.2	0.0	0.0	1.6	1.6	1.8	0.0	3.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	68.6	8.4	0.0	0.0	14.9	11.4	11.8	0.0	10.4			
LnGrp Delay(d),s/veh	278.4	6.2	0.0	0.0	16.0	14.3	40.7	0.0	41.7			
LnGrp LOS	F	A			B	B	D		D			
Approach Vol, veh/h		1581			1451			774				
Approach Delay, s/veh		109.3			15.5			41.0				
Approach LOS		F			B			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.0	61.9		24.1		75.9		
Change Period (Y+Rc), s	3.5	* 5.2		* 5.4		* 5.2		
Max Green Setting (Gmax), s	10.5	* 26		* 50		* 40		
Max Q Clear Time (g_c+I1), s	12.5	24.9		16.5		13.1		
Green Ext Time (p_c), s	0.0	0.5		2.2		2.9		

Intersection Summary		
HCM 2010 Ctrl Delay	59.7	
HCM 2010 LOS	E	

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1104: NW 5th Ave & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	829	293	148	1137	40	174	144	130	24	76	81
Future Volume (veh/h)	141	829	293	148	1137	40	174	144	130	24	76	81
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	148	873	308	156	1197	42	183	152	137	25	80	85
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	380	1796	632	348	2146	75	163	95	86	67	173	162
Arrive On Green	0.06	0.92	0.69	0.81	0.81	0.81	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1792	2594	913	477	3523	124	530	440	397	127	801	752
Grp Volume(v), veh/h	148	601	580	156	607	632	472	0	0	190	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1720	477	1787	1859	1368	0	0	1680	0	0
Q Serve(g_s), s	3.0	4.9	11.3	13.4	12.0	12.0	12.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.0	4.9	11.3	16.2	12.0	12.0	22.0	0.0	0.0	9.8	0.0	0.0
Prop In Lane	1.00		0.53	1.00		0.07	0.39		0.29	0.13		0.45
Lane Grp Cap(c), veh/h	380	1237	1191	348	1089	1133	344	0	0	402	0	0
V/C Ratio(X)	0.39	0.49	0.49	0.45	0.56	0.56	1.37	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	407	1237	1191	348	1089	1133	344	0	0	402	0	0
HCM Platoon Ratio	1.33	1.33	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	1.4	4.3	5.9	4.9	4.9	42.1	0.0	0.0	35.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.4	1.4	4.1	2.1	2.0	184.9	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	4.7	9.7	3.8	10.5	10.8	49.2	0.0	0.0	8.4	0.0	0.0
LnGrp Delay(d),s/veh	7.3	2.8	5.7	10.0	7.0	6.9	227.0	0.0	0.0	35.9	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	F			D		
Approach Vol, veh/h		1329			1395			472			190	
Approach Delay, s/veh		4.6			7.3			227.0			35.9	
Approach LOS		A			A			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.5	66.7		26.8		75.2		26.8
Change Period (Y+Rc), s	3.5	* 4.6		* 4.8		* 4.6		* 4.8
Max Green Setting (Gmax), s	6.5	* 60		* 22		* 70		* 22
Max Q Clear Time (g_c+I1), s	5.0	18.2		24.0		13.3		11.8
Green Ext Time (p_c), s	0.0	4.8		0.0		3.2		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	38.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	383	1184	159	120	1185	120	438	2015	140	130	840	246
Future Volume (veh/h)	383	1184	159	120	1185	120	438	2015	140	130	840	246
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	407	1260	169	128	1261	128	466	2144	149	138	894	262
Adj No. of Lanes	1	3	0	1	3	0	1	3	0	1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	209	1400	188	204	1448	147	233	1475	102	181	1187	346
Arrive On Green	0.06	0.31	0.31	0.06	0.31	0.31	0.08	0.40	0.40	0.08	0.40	0.40
Sat Flow, veh/h	1792	4582	615	1792	4739	481	1792	4907	339	1792	3949	1153
Grp Volume(v), veh/h	407	942	487	128	911	478	466	1491	802	138	775	381
Grp Sat Flow(s),veh/h/ln	1792	1712	1773	1792	1712	1796	1792	1712	1821	1792	1712	1678
Q Serve(g_s), s	6.5	26.3	26.3	4.8	25.2	25.2	6.1	30.1	30.1	5.4	19.4	19.6
Cycle Q Clear(g_c), s	6.5	26.3	26.3	4.8	25.2	25.2	6.1	30.1	30.1	5.4	19.4	19.6
Prop In Lane	1.00		0.35	1.00		0.27	1.00		0.19	1.00		0.69
Lane Grp Cap(c), veh/h	209	1046	542	204	1046	549	233	1029	547	181	1029	504
V/C Ratio(X)	1.94	0.90	0.90	0.63	0.87	0.87	2.00	1.45	1.46	0.76	0.75	0.76
Avail Cap(c_a), veh/h	209	1147	594	204	1147	602	233	1029	547	181	1029	504
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	33.3	33.3	25.7	32.9	32.9	32.9	30.0	30.0	26.0	26.8	26.9
Incr Delay (d2), s/veh	441.4	8.7	15.1	4.5	6.5	11.5	466.6	207.7	219.0	15.5	5.1	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	53.4	19.8	21.5	4.7	18.7	20.4	62.2	78.8	86.9	6.1	15.1	15.8
LnGrp Delay(d),s/veh	472.3	42.0	48.3	30.3	39.4	44.4	499.5	237.8	249.0	41.6	31.9	37.0
LnGrp LOS	F	D	D	C	D	D	F	F	F	D	C	D
Approach Vol, veh/h		1836			1517			2759			1294	
Approach Delay, s/veh		139.1			40.2			285.2			34.4	
Approach LOS		F			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	37.0	13.0	37.0	13.0	37.0	13.0	37.0
Change Period (Y+Rc), s	6.9	6.9	6.5	6.5	6.9	6.9	6.5	6.5
Max Green Setting (Gmax), s	6.1	27.1	6.5	33.5	6.1	27.1	6.5	33.5
Max Q Clear Time (g_c+I1), s	8.1	21.6	8.5	27.2	7.4	32.1	6.8	28.3
Green Ext Time (p_c), s	0.0	1.9	0.0	2.4	0.0	0.0	0.0	2.2

Intersection Summary		
HCM 2010 Ctrl Delay		155.0
HCM 2010 LOS		F

HCM 2010 Signalized Intersection Summary
1203: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 119th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	918	0	0	1182	135	474	40	691	0	0	0
Future Volume (veh/h)	199	918	0	0	1182	135	474	40	691	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	212	977	0	0	1257	144	350	0	928			
Adj No. of Lanes	1	2	0	0	2	0	1	0	2			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	269	2024	0	0	1477	169	584	0	1042			
Arrive On Green	0.11	0.76	0.00	0.00	0.61	0.61	0.33	0.00	0.33			
Sat Flow, veh/h	1774	3632	0	0	3295	365	1774	0	3167			
Grp Volume(v), veh/h	212	977	0	0	693	708	350	0	928			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1798	1774	0	1583			
Q Serve(g_s), s	6.0	10.4	0.0	0.0	31.6	32.0	16.5	0.0	27.8			
Cycle Q Clear(g_c), s	6.0	10.4	0.0	0.0	31.6	32.0	16.5	0.0	27.8			
Prop In Lane	1.00		0.00	0.00		0.20	1.00		1.00			
Lane Grp Cap(c), veh/h	269	2024	0	0	816	829	584	0	1042			
V/C Ratio(X)	0.79	0.48	0.00	0.00	0.85	0.85	0.60	0.00	0.89			
Avail Cap(c_a), veh/h	303	2024	0	0	816	829	692	0	1235			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.88	0.88	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.0	6.4	0.0	0.0	16.5	16.6	28.0	0.0	31.8			
Incr Delay (d2), s/veh	10.0	0.8	0.0	0.0	9.6	9.8	0.8	0.0	7.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	6.5	8.8	0.0	0.0	23.7	24.2	12.9	0.0	19.1			
LnGrp Delay(d),s/veh	30.0	7.2	0.0	0.0	26.1	26.4	28.8	0.0	39.0			
LnGrp LOS	C	A			C	C	C		D			
Approach Vol, veh/h		1189			1401			1278				
Approach Delay, s/veh		11.3			26.3			36.2				
Approach LOS		B			C			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.1	51.0		37.9		62.1		
Change Period (Y+Rc), s	3.0	* 4.9		5.0		* 4.9		
Max Green Setting (Gmax), s	10.0	* 38		39.0		* 51		
Max Q Clear Time (g_c+I1), s	8.0	34.0		29.8		12.4		
Green Ext Time (p_c), s	0.1	1.8		3.1		3.0		

Intersection Summary		
HCM 2010 Ctrl Delay		24.9
HCM 2010 LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1204: NW 5th Ave & NW 119th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	1413	113	47	1175	16	94	64	71	8	29	36
Future Volume (veh/h)	126	1413	113	47	1175	16	94	64	71	8	29	36
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	133	1487	119	49	1237	17	99	67	75	8	31	38
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	2569	204	315	2765	38	198	106	118	137	100	123
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	441	3321	264	315	3575	49	1326	804	900	1241	763	935
Grp Volume(v), veh/h	133	788	818	49	612	642	99	0	142	8	0	69
Grp Sat Flow(s),veh/h/ln	441	1770	1816	315	1770	1854	1326	0	1704	1241	0	1698
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	7.9	0.6	0.0	3.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	7.9	8.5	0.0	3.7
Prop In Lane	1.00		0.15	1.00		0.03	1.00		0.53	1.00		0.55
Lane Grp Cap(c), veh/h	413	1369	1405	315	1369	1434	198	0	224	137	0	223
V/C Ratio(X)	0.32	0.58	0.58	0.16	0.45	0.45	0.50	0.00	0.63	0.06	0.00	0.31
Avail Cap(c_a), veh/h	413	1369	1405	315	1369	1434	222	0	256	160	0	255
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	44.3	0.0	41.1	45.2	0.0	39.3
Incr Delay (d2), s/veh	1.7	1.4	1.4	1.0	1.1	1.0	1.5	0.0	3.4	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	1.0	1.0	0.2	0.7	0.7	4.9	0.0	7.1	0.4	0.0	3.2
LnGrp Delay(d),s/veh	1.7	1.4	1.4	1.0	1.1	1.0	45.7	0.0	44.6	45.3	0.0	39.9
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		1739			1303			241			77	
Approach Delay, s/veh		1.4			1.0			45.1			40.4	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		81.8		18.2		81.8		18.2
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		75.5		15.0		75.5		15.0
Max Q Clear Time (g_c+I1), s		2.0		13.0		2.0		10.5
Green Ext Time (p_c), s		4.1		0.2		6.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	5.3
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	141	12	388	131	562	19	2230	218	238	671	20
Future Volume (veh/h)	44	141	12	388	131	562	19	2230	218	238	671	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	45	144	12	265	317	573	19	2276	222	243	685	20
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	125	233	19	297	312	419	380	1965	189	244	2935	85
Arrive On Green	0.07	0.07	0.07	0.17	0.17	0.17	0.55	0.55	0.55	0.13	0.76	0.76
Sat Flow, veh/h	1792	3344	276	1792	1881	1599	747	4767	458	1792	5129	149
Grp Volume(v), veh/h	45	76	80	265	317	573	19	1625	873	243	457	248
Grp Sat Flow(s),veh/h/ln	1792	1787	1832	1792	1881	1599	747	1712	1800	1792	1712	1855
Q Serve(g_s), s	2.4	4.1	4.2	14.5	16.6	16.6	1.2	41.2	41.2	9.5	3.9	3.9
Cycle Q Clear(g_c), s	2.4	4.1	4.2	14.5	16.6	16.6	1.2	41.2	41.2	9.5	3.9	3.9
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.25	1.00		0.08
Lane Grp Cap(c), veh/h	125	125	128	297	312	419	380	1411	742	244	1959	1061
V/C Ratio(X)	0.36	0.61	0.62	0.89	1.02	1.37	0.05	1.15	1.18	1.00	0.23	0.23
Avail Cap(c_a), veh/h	297	297	304	297	312	419	380	1411	742	244	1959	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	45.2	45.2	40.8	41.7	36.9	13.5	22.6	22.6	28.2	5.6	5.6
Incr Delay (d2), s/veh	1.3	3.6	3.7	23.8	51.5	178.4	0.2	76.6	93.2	56.4	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.2	3.9	4.1	13.7	23.5	58.1	0.5	61.4	70.7	15.8	3.4	3.8
LnGrp Delay(d),s/veh	45.7	48.8	48.9	64.6	93.3	215.3	13.8	99.2	115.8	84.6	5.9	6.1
LnGrp LOS	D	D	D	E	F	F	B	F	F	F	A	A
Approach Vol, veh/h		201			1155			2517			948	
Approach Delay, s/veh		48.1			147.3			104.3			26.1	
Approach LOS		D			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		63.6		23.0	16.0	47.6		13.4
Change Period (Y+Rc), s		6.4		6.4	6.4	6.4		6.4
Max Green Setting (Gmax), s		47.6		16.6	9.6	31.6		16.6
Max Q Clear Time (g_c+I1), s		5.9		18.6	11.5	43.2		6.2
Green Ext Time (p_c), s		1.8		0.0	0.0	0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	96.9
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1302: NB On-Ramp/SB Off-Ramp & NW 125th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	546	107	610	836	0	0	0	0	692	1	313
Future Volume (veh/h)	0	546	107	610	836	0	0	0	0	692	1	313
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	587	115	656	899	0				744	1	337
Adj No. of Lanes	0	2	0	1	2	0				0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	938	183	602	2145	0				532	1	475
Arrive On Green	0.00	0.47	0.47	0.29	0.81	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	3119	515	1774	3632	0				1772	2	1583
Grp Volume(v), veh/h	0	307	395	656	899	0				745	0	337
Grp Sat Flow(s),veh/h/ln	0	1378	1772	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	16.6	16.7	22.0	7.4	0.0				30.0	0.0	18.9
Cycle Q Clear(g_c), s	0.0	16.6	16.7	22.0	7.4	0.0				30.0	0.0	18.9
Prop In Lane	0.00		0.29	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	491	631	602	2145	0				532	0	475
V/C Ratio(X)	0.00	0.62	0.63	1.09	0.42	0.00				1.40	0.00	0.71
Avail Cap(c_a), veh/h	0	491	631	602	2145	0				532	0	475
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.76	0.76	0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.3	21.4	16.2	4.5	0.0				35.0	0.0	31.1
Incr Delay (d2), s/veh	0.0	4.5	3.6	43.1	0.1	0.0				191.0	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	10.6	12.9	32.1	4.5	0.0				77.2	0.0	13.7
LnGrp Delay(d),s/veh	0.0	25.8	24.9	59.3	4.6	0.0				226.0	0.0	35.7
LnGrp LOS		C	C	F	A					F		D
Approach Vol, veh/h		702			1555						1082	
Approach Delay, s/veh		25.3			27.7						166.7	
Approach LOS		C			C						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			25.0	40.0		35.0
Change Period (Y+Rc), s		* 4.4			3.0	* 4.4		5.0
Max Green Setting (Gmax), s		* 61			22.0	* 36		30.0
Max Q Clear Time (g_c+I1), s		9.4			24.0	18.7		32.0
Green Ext Time (p_c), s		2.7			0.0	1.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.2
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	1045	0	0	1292	368	143	341	236	0	0	0
Future Volume (veh/h)	171	1045	0	0	1292	368	143	341	236	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1900			
Adj Flow Rate, veh/h	178	1089	0	0	1346	383	149	355	246			
Adj No. of Lanes	1	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	208	2154	0	0	1162	323	175	427	315			
Arrive On Green	0.10	0.81	0.00	0.00	0.62	0.62	0.26	0.26	0.26			
Sat Flow, veh/h	1774	3632	0	0	2913	691	664	1620	1198			
Grp Volume(v), veh/h	178	1089	0	0	764	965	411	0	339			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1434	1741	1830	0	1651			
Q Serve(g_s), s	5.7	9.9	0.0	0.0	46.8	46.8	21.3	0.0	19.0			
Cycle Q Clear(g_c), s	5.7	9.9	0.0	0.0	46.8	46.8	21.3	0.0	19.0			
Prop In Lane	1.00		0.00	0.00		0.40	0.36		0.73			
Lane Grp Cap(c), veh/h	208	2154	0	0	671	814	482	0	435			
V/C Ratio(X)	0.85	0.51	0.00	0.00	1.14	1.19	0.85	0.00	0.78			
Avail Cap(c_a), veh/h	225	2154	0	0	671	814	615	0	555			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.36	0.36	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.2	4.7	0.0	0.0	18.9	18.9	35.0	0.0	34.1			
Incr Delay (d2), s/veh	9.9	0.3	0.0	0.0	79.5	95.7	8.5	0.0	4.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	7.6	6.9	0.0	0.0	59.3	78.6	17.5	0.0	14.2			
LnGrp Delay(d),s/veh	35.1	5.0	0.0	0.0	98.4	114.5	43.5	0.0	39.0			
LnGrp LOS	D	A			F	F	D		D			
Approach Vol, veh/h		1267			1729			750				
Approach Delay, s/veh		9.2			107.4			41.4				
Approach LOS		A			F			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	14.1	53.2		32.7		67.3		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	8.6	38.6		33.6		53.6		
Max Q Clear Time (g_c+I1), s	7.7	48.8		23.3		11.9		
Green Ext Time (p_c), s	0.0	0.0		3.0		3.4		

Intersection Summary	
HCM 2010 Ctrl Delay	61.0
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	3580	395	0	0	0	0	1656	834	747	1345	0
Future Volume (veh/h)	184	3580	395	0	0	0	0	1656	834	747	1345	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	190	3691	407				0	1707	860	770	1387	0
Adj No. of Lanes	1	3	1				0	3	0	1	3	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	436	1251	390				0	1519	700	278	3183	0
Arrive On Green	0.25	0.25	0.25				0.00	0.59	0.59	0.15	0.83	0.00
Sat Flow, veh/h	1774	5085	1583				0	3574	1570	1774	5253	0
Grp Volume(v), veh/h	190	3691	407				0	1698	869	770	1387	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1583				0	1695	1586	1774	1695	0
Q Serve(g_s), s	9.0	24.6	24.6				0.0	44.6	44.6	11.6	7.2	0.0
Cycle Q Clear(g_c), s	9.0	24.6	24.6				0.0	44.6	44.6	11.6	7.2	0.0
Prop In Lane	1.00		1.00				0.00		0.99	1.00		0.00
Lane Grp Cap(c), veh/h	436	1251	390				0	1512	707	278	3183	0
V/C Ratio(X)	0.44	2.95	1.04				0.00	1.12	1.23	2.77	0.44	0.00
Avail Cap(c_a), veh/h	436	1251	390				0	1512	707	278	3183	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.51	0.51	0.00
Uniform Delay (d), s/veh	31.8	37.7	37.7				0.0	20.3	20.3	29.9	3.7	0.0
Incr Delay (d2), s/veh	0.5	879.9	57.8				0.0	64.7	115.0	802.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	204.1	30.5				0.0	61.3	75.1	123.6	5.3	0.0
LnGrp Delay(d),s/veh	32.3	917.6	95.5				0.0	85.1	135.3	832.4	4.0	0.0
LnGrp LOS	C	F	F					F	F	F	A	
Approach Vol, veh/h		4288						2567			2157	
Approach Delay, s/veh		800.3						102.1			299.7	
Approach LOS		F						F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.0	51.0		31.0		69.0		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	11.6	44.6		24.6		62.6		
Max Q Clear Time (g_c+I1), s	13.6	46.6		26.6		9.2		
Green Ext Time (p_c), s	0.0	0.0		0.0		4.8		

Intersection Summary		
HCM 2010 Ctrl Delay		481.6
HCM 2010 LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

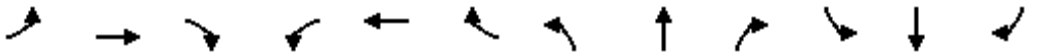
Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	2328	320	300	619
v/c Ratio	1.57	0.30	0.34	0.34
Control Delay	292.1	28.3	12.9	12.9
Queue Delay	0.5	0.0	0.1	0.0
Total Delay	292.6	28.3	12.9	12.9
Queue Length 50th (ft)	~890	63	69	86
Queue Length 95th (ft)	m259	m13	246	216
Internal Link Dist (ft)	302			402
Turn Bay Length (ft)		170	190	
Base Capacity (vph)	1484	1056	875	1799
Starvation Cap Reductn	153	0	0	0
Spillback Cap Reductn	180	0	51	103
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.79	0.30	0.36	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1402: SB On-Ramp/NW 6th Ct & NW 135th St

2045 No Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2212	304	0	0	0	0	0	0	438	435	0
Future Volume (vph)	0	2212	304	0	0	0	0	0	0	438	435	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8							6.8	6.8	
Lane Util. Factor		*0.80	0.88							0.91	0.91	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	0.99	
Satd. Flow (prot)		4471	2787							1610	3347	
Flt Permitted		1.00	1.00							0.95	0.99	
Satd. Flow (perm)		4471	2787							1610	3347	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	2328	320	0	0	0	0	0	0	461	458	0
RTOR Reduction (vph)	0	0	131	0	0	0	0	0	0	19	19	0
Lane Group Flow (vph)	0	2328	189	0	0	0	0	0	0	281	600	0
Turn Type		NA	Perm							custom	NA	
Protected Phases		2								4	4	
Permitted Phases			2							4		
Actuated Green, G (s)		33.2	33.2							53.2	53.2	
Effective Green, g (s)		33.2	33.2							53.2	53.2	
Actuated g/C Ratio		0.33	0.33							0.53	0.53	
Clearance Time (s)		6.8	6.8							6.8	6.8	
Vehicle Extension (s)		1.0	1.0							2.5	2.5	
Lane Grp Cap (vph)		1484	925							856	1780	
v/s Ratio Prot		c0.52								0.17	c0.18	
v/s Ratio Perm			0.07									
v/c Ratio		1.57	0.20							0.33	0.34	
Uniform Delay, d1		33.4	23.9							13.3	13.3	
Progression Factor		1.62	2.95							1.02	0.99	
Incremental Delay, d2		256.2	0.0							0.1	0.1	
Delay (s)		310.4	70.8							13.7	13.3	
Level of Service		F	E							B	B	
Approach Delay (s)		281.4			0.0			0.0			13.4	
Approach LOS		F			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	212.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

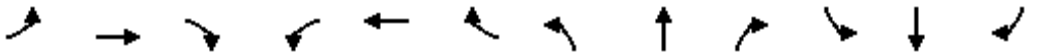
Lane Group	EBL	EBT	NBT	NBR
Lane Group Flow (vph)	1323	1398	660	286
v/c Ratio	1.27	0.70	1.07	0.82
Control Delay	141.2	2.8	90.6	40.5
Queue Delay	1.3	49.1	12.8	0.0
Total Delay	142.5	51.9	103.4	40.5
Queue Length 50th (ft)	~1069	26	~400	181
Queue Length 95th (ft)	m153	m28	#591	#443
Internal Link Dist (ft)		165	421	
Turn Bay Length (ft)				
Base Capacity (vph)	1038	2004	618	347
Starvation Cap Reductn	232	871	0	0
Spillback Cap Reductn	130	0	42	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.64	1.23	1.15	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1257	1328	0	0	0	0	0	536	363	0	0	0
Future Volume (vph)	1257	1328	0	0	0	0	0	536	363	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8						6.8	6.8			
Lane Util. Factor	1.00	0.95						*0.58	*0.58			
Frt	1.00	1.00						0.98	0.85			
Flt Protected	0.95	1.00						1.00	1.00			
Satd. Flow (prot)	1752	3505						2093	909			
Flt Permitted	0.95	1.00						1.00	1.00			
Satd. Flow (perm)	1752	3505						2093	909			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1323	1398	0	0	0	0	0	564	382	0	0	0
RTOR Reduction (vph)	36	0	0	0	0	0	0	7	82	0	0	0
Lane Group Flow (vph)	1287	1398	0	0	0	0	0	653	204	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	custom	NA						NA	Perm			
Protected Phases	2 7	2 7						8				
Permitted Phases	2 7								8			
Actuated Green, G (s)	57.2	57.2						29.2	29.2			
Effective Green, g (s)	57.2	57.2						29.2	29.2			
Actuated g/C Ratio	0.57	0.57						0.29	0.29			
Clearance Time (s)								6.8	6.8			
Vehicle Extension (s)								2.5	2.5			
Lane Grp Cap (vph)	1002	2004						611	265			
v/s Ratio Prot	c0.73	0.40						c0.31				
v/s Ratio Perm									0.22			
v/c Ratio	1.28	0.70						1.07	0.77			
Uniform Delay, d1	21.4	15.2						35.4	32.3			
Progression Factor	0.56	0.17						1.00	1.00			
Incremental Delay, d2	128.7	0.1						56.1	12.1			
Delay (s)	140.7	2.6						91.5	44.4			
Level of Service	F	A						F	D			
Approach Delay (s)		69.8			0.0			77.3			0.0	
Approach LOS		E			A			E			A	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	331	723	127	787	1094	0	0	1014	190
Future Volume (veh/h)	0	0	0	331	723	127	787	1094	0	0	1014	190
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				269	835	130	803	1116	0	0	1035	194
Adj No. of Lanes				1	3	1	1	3	0	0	3	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				367	1157	328	410	3324	0	0	2132	399
Arrive On Green				0.21	0.21	0.21	0.13	0.88	0.00	0.00	0.67	0.67
Sat Flow, veh/h				1757	5534	1568	1757	5202	0	0	4429	798
Grp Volume(v), veh/h				269	835	130	803	1116	0	0	815	414
Grp Sat Flow(s),veh/h/ln				1757	1845	1568	1757	1679	0	0	1679	1704
Q Serve(g_s), s				14.3	14.1	7.2	9.6	3.8	0.0	0.0	12.0	12.0
Cycle Q Clear(g_c), s				14.3	14.1	7.2	9.6	3.8	0.0	0.0	12.0	12.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.47
Lane Grp Cap(c), veh/h				367	1157	328	410	3324	0	0	1679	852
V/C Ratio(X)				0.73	0.72	0.40	1.96	0.34	0.00	0.00	0.49	0.49
Avail Cap(c_a), veh/h				620	1953	553	410	3324	0	0	1679	852
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.89	0.89	0.89	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.9	36.8	34.1	19.0	2.3	0.0	0.0	10.4	10.4
Incr Delay (d2), s/veh				1.0	0.3	0.3	431.2	0.0	0.0	0.0	1.0	2.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.1	11.4	5.6	95.2	2.3	0.0	0.0	9.6	10.0
LnGrp Delay(d),s/veh				37.9	37.1	34.4	450.2	2.3	0.0	0.0	11.4	12.4
LnGrp LOS				D	D	C	F	A			B	B
Approach Vol, veh/h					1234			1919			1229	
Approach Delay, s/veh					37.0			189.8			11.7	
Approach LOS					D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	16.0	56.4		27.6		72.4		
Change Period (Y+Rc), s	6.4	6.4		* 6.7		6.4		
Max Green Setting (Gmax), s	9.6	35.6		* 35		51.6		
Max Q Clear Time (g_c+I1), s	11.6	14.0		16.3		5.8		
Green Ext Time (p_c), s	0.0	3.5		4.6		3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	96.8
HCM 2010 LOS	F

Notes

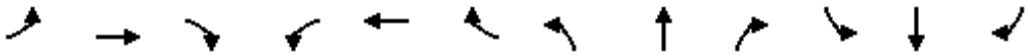
User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	337	1042	809
v/c Ratio	0.43	0.46	0.57
Control Delay	1.7	3.1	22.5
Queue Delay	0.7	0.3	0.0
Total Delay	2.5	3.3	22.5
Queue Length 50th (ft)	0	21	172
Queue Length 95th (ft)	m9	21	275
Internal Link Dist (ft)		151	338
Turn Bay Length (ft)			
Base Capacity (vph)	931	2796	1420
Starvation Cap Reductn	318	982	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	0.57	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	510	827	0	0	0	0	0	508	276
Future Volume (vph)	0	0	0	510	827	0	0	0	0	0	508	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0						6.4	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.95	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4763						3352	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4763						3352	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	526	853	0	0	0	0	0	524	285
RTOR Reduction (vph)	0	0	0	60	39	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	0	0	277	1003	0	0	0	0	0	747	0
Turn Type				Perm	NA						NA	
Protected Phases					2 7						8	
Permitted Phases				2 7								
Actuated Green, G (s)				46.7	46.7						40.5	
Effective Green, g (s)				46.7	46.7						40.5	
Actuated g/C Ratio				0.47	0.47						0.40	
Clearance Time (s)											6.4	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)				710	2224						1357	
v/s Ratio Prot											c0.22	
v/s Ratio Perm				0.18	0.21							
v/c Ratio				0.39	0.45						0.55	
Uniform Delay, d1				17.4	18.0						22.8	
Progression Factor				0.06	0.16						1.00	
Incremental Delay, d2				0.2	0.1						0.5	
Delay (s)				1.3	3.0						23.3	
Level of Service				A	A						C	
Approach Delay (s)		0.0			2.6			0.0			23.3	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

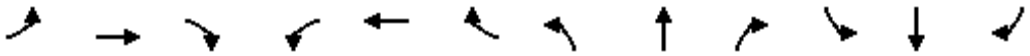
Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1146	710	1852
v/c Ratio	0.82	1.60	0.82
Control Delay	42.7	306.1	16.3
Queue Delay	0.0	0.0	47.4
Total Delay	42.7	306.1	63.7
Queue Length 50th (ft)	215	~611	458
Queue Length 95th (ft)	#260	#837	m370
Internal Link Dist (ft)	475		403
Turn Bay Length (ft)		225	
Base Capacity (vph)	1395	444	2301
Starvation Cap Reductn	0	0	649
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.82	1.60	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1066	660	150	1573	0	0	0	0
Future Volume (vph)	0	0	0	0	1066	660	150	1573	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0	6.0		6.4				
Lane Util. Factor					*0.82	1.00		0.95				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					6050	1568		3490				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					6050	1568		3490				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	0	1146	710	161	1691	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	82	0	12	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1146	628	0	1840	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					23.1	23.1		64.5				
Effective Green, g (s)					23.1	23.1		64.5				
Actuated g/C Ratio					0.23	0.23		0.64				
Clearance Time (s)					6.0	6.0		6.4				
Vehicle Extension (s)					1.0	1.0		3.0				
Lane Grp Cap (vph)					1397	362		2251				
v/s Ratio Prot					0.19							
v/s Ratio Perm						c0.40		0.53				
v/c Ratio					0.82	1.73		0.82				
Uniform Delay, d1					36.5	38.5		13.3				
Progression Factor					1.00	1.00		1.20				
Incremental Delay, d2					5.5	341.7		0.2				
Delay (s)					42.0	380.1		16.3				
Level of Service					D	F		B				
Approach Delay (s)		0.0			171.3			16.3			0.0	
Approach LOS		A			F			B			A	

Intersection Summary			
HCM 2000 Control Delay	93.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
1501: NW 7th Ave/SR 7 & NW 151st St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	300	19	272	80	239	20	966	309	224	630	61
Future Volume (veh/h)	248	300	19	272	80	239	20	966	309	224	630	61
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	256	309	20	280	82	246	21	996	319	231	649	63
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	293	712	46	325	633	657	353	1459	467	283	2458	237
Arrive On Green	0.21	0.21	0.21	0.07	0.34	0.34	0.51	0.51	0.51	0.10	0.70	0.70
Sat Flow, veh/h	1037	3344	215	1757	1845	1568	728	3779	1209	1757	4673	450
Grp Volume(v), veh/h	256	161	168	280	82	246	21	885	430	231	465	247
Grp Sat Flow(s),veh/h/ln	1037	1752	1807	1757	1845	1568	728	1679	1631	1757	1679	1765
Q Serve(g_s), s	21.3	8.0	8.1	6.6	3.1	10.8	1.5	19.7	19.8	7.6	5.1	5.2
Cycle Q Clear(g_c), s	21.3	8.0	8.1	6.6	3.1	10.8	1.5	19.7	19.8	7.6	5.1	5.2
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.74	1.00		0.25
Lane Grp Cap(c), veh/h	293	373	385	325	633	657	353	1296	630	283	1766	929
V/C Ratio(X)	0.87	0.43	0.44	0.86	0.13	0.37	0.06	0.68	0.68	0.82	0.26	0.27
Avail Cap(c_a), veh/h	293	373	385	325	633	657	353	1296	630	283	1766	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	34.1	34.1	35.7	22.6	20.0	15.3	19.7	19.8	21.0	7.9	7.9
Incr Delay (d2), s/veh	24.0	0.8	0.8	20.2	0.1	0.4	0.3	2.9	5.9	16.7	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.9	7.1	7.4	12.2	2.8	8.3	0.6	14.6	14.9	7.2	4.4	4.8
LnGrp Delay(d),s/veh	64.8	34.9	34.9	56.0	22.7	20.4	15.6	22.7	25.7	37.7	8.2	8.6
LnGrp LOS	E	C	C	E	C	C	B	C	C	D	A	A
Approach Vol, veh/h		585			608			1336			943	
Approach Delay, s/veh		48.0			37.1			23.5			15.6	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6	7	8
Phs Duration (G+Y+Rc), s		59.0		41.0	14.0	45.0	13.0	28.0
Change Period (Y+Rc), s		6.4		* 6.7	6.4	6.4	6.4	* 6.7
Max Green Setting (Gmax), s		52.6		* 34	7.6	38.6	6.6	* 21
Max Q Clear Time (g_c+I1), s		7.2		12.8	9.6	21.8	8.6	23.3
Green Ext Time (p_c), s		5.4		1.2	0.0	8.7	0.0	0.0

Intersection Summary			
HCM 2010 Ctrl Delay		27.9	
HCM 2010 LOS		C	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1503: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 151st St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	303	184	0	0	185	29	436	539	257	0	0	353
Future Volume (veh/h)	303	184	0	0	185	29	436	539	257	0	0	353
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1900	1881	1881	1881	1900	1881	1900
Adj Flow Rate, veh/h	316	192	0	0	193	30	454	561	268	0	0	368
Adj No. of Lanes	1	1	0	0	1	0	1	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1	1	1	1
Cap, veh/h	689	1064	0	0	899	140	592	622	529	0	0	0
Arrive On Green	0.75	0.75	0.00	0.00	0.75	0.75	0.33	0.33	0.33	0.00	0.00	0.00
Sat Flow, veh/h	1165	1881	0	0	1590	247	1792	1881	1599		0	
Grp Volume(v), veh/h	316	192	0	0	0	223	454	561	268		0.0	
Grp Sat Flow(s),veh/h/ln	1165	1881	0	0	0	1838	1792	1881	1599			
Q Serve(g_s), s	12.6	2.9	0.0	0.0	0.0	3.6	22.7	28.4	13.5			
Cycle Q Clear(g_c), s	16.1	2.9	0.0	0.0	0.0	3.6	22.7	28.4	13.5			
Prop In Lane	1.00		0.00	0.00		0.13	1.00		1.00			
Lane Grp Cap(c), veh/h	689	1064	0	0	0	1039	592	622	529			
V/C Ratio(X)	0.46	0.18	0.00	0.00	0.00	0.21	0.77	0.90	0.51			
Avail Cap(c_a), veh/h	689	1064	0	0	0	1039	649	681	579			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	8.2	5.8	0.0	0.0	0.0	5.8	30.0	31.9	26.9			
Incr Delay (d2), s/veh	2.2	0.4	0.0	0.0	0.0	0.5	4.7	14.2	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	7.9	2.9	0.0	0.0	0.0	3.4	17.7	24.1	10.1			
LnGrp Delay(d),s/veh	10.4	6.1	0.0	0.0	0.0	6.3	34.7	46.1	27.5			
LnGrp LOS	B	A				A	C	D	C			
Approach Vol, veh/h		508			223			1283				
Approach Delay, s/veh		8.8			6.3			38.2				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		62.1		37.9		62.1		
Change Period (Y+Rc), s		* 5.6		* 4.8		* 5.6		
Max Green Setting (Gmax), s		* 21		* 36		* 21		
Max Q Clear Time (g_c+I1), s		5.6		30.4		18.1		
Green Ext Time (p_c), s		0.4		2.6		0.3		

Intersection Summary	
HCM 2010 Ctrl Delay	27.2
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	236	492	504	0	0	532
Future Volume (veh/h)	236	492	504	0	0	532
Number	3	18	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	0	0	1845
Adj Flow Rate, veh/h	243	0	520	0	0	548
Adj No. of Lanes	2	1	1	0	0	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	0	0	3
Cap, veh/h	335	154	1401	0	0	2662
Arrive On Green	0.10	0.00	1.00	0.00	0.00	1.00
Sat Flow, veh/h	3408	1568	1845	0	0	3689
Grp Volume(v), veh/h	243	0	520	0	0	548
Grp Sat Flow(s),veh/h/ln	1704	1568	1845	0	0	1752
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		0.00	0.00	
Lane Grp Cap(c), veh/h	335	154	1401	0	0	2662
V/C Ratio(X)	0.73	0.00	0.37	0.00	0.00	0.21
Avail Cap(c_a), veh/h	1500	690	1401	0	0	2662
HCM Platoon Ratio	1.00	1.00	1.33	1.00	1.00	1.33
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.84
Uniform Delay (d), s/veh	39.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.8	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	0.0	0.5	0.0	0.0	0.1
LnGrp Delay(d),s/veh	41.6	0.0	0.8	0.0	0.0	0.1
LnGrp LOS	D		A			A
Approach Vol, veh/h	243		520			548
Approach Delay, s/veh	41.6		0.8			0.1
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		74.8				74.8		15.2
Change Period (Y+Rc), s		6.4				6.4		6.4
Max Green Setting (Gmax), s		37.6				37.6		39.6
Max Q Clear Time (g_c+I1), s		2.0				2.0		8.2
Green Ext Time (p_c), s		1.2				1.5		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

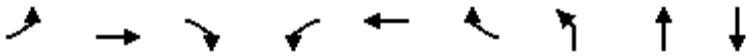
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	18	101	18	23	65	182	1035	29	26	463	90
Future Volume (veh/h)	50	18	101	18	23	65	182	1035	29	26	463	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1759	1759	1759	1900
Adj Flow Rate, veh/h	36	42	0	19	24	0	188	1067	0	27	477	0
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	156	163	0	106	111	94	501	1315	588	252	1061	0
Arrive On Green	0.09	0.09	0.00	0.06	0.06	0.00	0.11	0.39	0.00	0.03	0.32	0.00
Sat Flow, veh/h	1675	1759	0	1675	1759	1495	1675	3343	1495	1675	3431	0
Grp Volume(v), veh/h	36	42	0	19	24	0	188	1067	0	27	477	0
Grp Sat Flow(s),veh/h/ln	1675	1759	0	1675	1759	1495	1675	1671	1495	1675	1671	0
Q Serve(g_s), s	1.0	1.1	0.0	0.5	0.6	0.0	3.6	14.1	0.0	0.5	5.6	0.0
Cycle Q Clear(g_c), s	1.0	1.1	0.0	0.5	0.6	0.0	3.6	14.1	0.0	0.5	5.6	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	156	163	0	106	111	94	501	1315	588	252	1061	0
V/C Ratio(X)	0.23	0.26	0.00	0.18	0.22	0.00	0.38	0.81	0.00	0.11	0.45	0.00
Avail Cap(c_a), veh/h	675	709	0	675	709	603	669	5922	2649	547	5922	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.9	20.9	0.0	22.0	22.1	0.0	9.6	13.4	0.0	11.8	13.5	0.0
Incr Delay (d2), s/veh	0.6	0.6	0.0	0.6	0.7	0.0	0.3	0.5	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	1.0	0.0	0.5	0.6	0.0	3.0	10.6	0.0	0.4	4.7	0.0
LnGrp Delay(d),s/veh	21.4	21.5	0.0	22.6	22.8	0.0	10.0	13.9	0.0	12.0	13.6	0.0
LnGrp LOS	C	C		C	C		A	B		B	B	
Approach Vol, veh/h		78			43			1255			504	
Approach Delay, s/veh		21.5			22.7			13.3			13.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	24.6		9.6	11.0	20.8		8.1
Change Period (Y+Rc), s	5.7	* 5.1		5.0	5.7	* 5.1		5.0
Max Green Setting (Gmax), s	10.3	* 88		20.0	10.3	* 88		20.0
Max Q Clear Time (g_c+I1), s	2.5	16.1		3.1	5.6	7.6		2.6
Green Ext Time (p_c), s	0.0	3.4		0.2	0.2	1.3		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

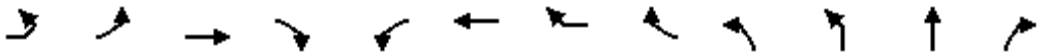


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL	NBT	SBT
Lane Group Flow (vph)	956	2786	705	58	3101	113	883	244	379
v/c Ratio	1.07	0.88	0.62	0.50	1.54	0.18	3.13	0.28	2.89
Control Delay	107.9	34.5	11.0	47.0	279.9	5.2	987.8	56.9	896.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.9	34.5	11.0	47.0	279.9	5.2	987.8	56.9	896.1
Queue Length 50th (ft)	~621	1010	214	22	~2071	0	~1858	126	~805
Queue Length 95th (ft)	#761	1134	359	73	#2122	47	#2126	171	#1032
Internal Link Dist (ft)		343			1250			512	496
Turn Bay Length (ft)	230		290	200		110	230		
Base Capacity (vph)	891	3159	1135	180	2020	645	282	858	131
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.88	0.62	0.32	1.54	0.18	3.13	0.28	2.89

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	8	929	2730	691	57	2791	235	123	649	217	212	27
Future Volume (vph)	8	929	2730	691	57	2791	235	123	649	217	212	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.0	5.0	5.0	5.0		5.0		5.5	6.9	
Lane Util. Factor		0.97	0.91	1.00	1.00	0.86		0.86		1.00	0.95	
Frt		1.00	1.00	0.85	1.00	0.99		0.85		1.00	0.98	
Flt Protected		0.95	1.00	1.00	0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		3433	5085	1583	1770	4747		1362		1770	3478	
Flt Permitted		0.05	1.00	1.00	0.05	1.00		1.00		0.19	1.00	
Satd. Flow (perm)		169	5085	1583	93	4747		1362		362	3478	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	8	948	2786	705	58	2848	240	126	662	221	216	28
RTOR Reduction (vph)	0	0	0	152	0	0	0	65	0	0	5	0
Lane Group Flow (vph)	0	956	2786	553	58	3101	0	48	0	883	239	0
Turn Type	pm+pt	pm+pt	NA	Perm	pm+pt	NA		Perm	pm+pt	pm+pt	NA	
Protected Phases	1	1	6		5	2			7	7	4	
Permitted Phases	6	6		6	2			2	4	4		
Actuated Green, G (s)		130.0	116.8	116.8	88.2	80.0		80.0		46.1	46.1	
Effective Green, g (s)		130.0	116.8	116.8	88.2	80.0		80.0		46.1	46.1	
Actuated g/C Ratio		0.69	0.62	0.62	0.47	0.43		0.43		0.25	0.25	
Clearance Time (s)		5.4	5.0	5.0	5.0	5.0		5.0		5.5	6.9	
Vehicle Extension (s)		4.5	1.0	1.0	3.0	1.0		1.0		3.5	2.5	
Lane Grp Cap (vph)		891	3159	983	116	2020		579		279	852	
v/s Ratio Prot		c0.25	0.55		0.02	c0.65				c0.43	0.07	
v/s Ratio Perm		0.49		0.35	0.21			0.04		c0.35		
v/c Ratio		1.07	0.88	0.56	0.50	1.54		0.08		3.16	0.28	
Uniform Delay, d1		64.6	29.8	20.7	36.4	54.0		32.2		65.0	57.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		51.7	3.1	0.4	3.4	243.3		0.0		983.5	0.1	
Delay (s)		116.3	33.0	21.2	39.8	297.3		32.2		1048.6	57.6	
Level of Service		F	C	C	D	F		C		F	E	
Approach Delay (s)			49.0			283.6					834.0	
Approach LOS			D			F					F	

Intersection Summary			
HCM 2000 Control Delay	265.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.87		
Actuated Cycle Length (s)	188.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	177.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	SBR2
Lane Configurations			
Traffic Volume (vph)	11	325	29
Future Volume (vph)	11	325	29
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)	6.9		
Lane Util. Factor	1.00		
Frt	0.87		
Flt Protected	1.00		
Satd. Flow (prot)	1619		
Flt Permitted	1.00		
Satd. Flow (perm)	1619		
Peak-hour factor, PHF	0.98	0.98	0.80
Adj. Flow (vph)	11	332	36
RTOR Reduction (vph)	2	0	0
Lane Group Flow (vph)	377	0	0
Turn Type	NA		
Protected Phases	8		
Permitted Phases			
Actuated Green, G (s)	15.1		
Effective Green, g (s)	15.1		
Actuated g/C Ratio	0.08		
Clearance Time (s)	6.9		
Vehicle Extension (s)	2.5		
Lane Grp Cap (vph)	130		
v/s Ratio Prot	0.23		
v/s Ratio Perm			
v/c Ratio	2.90		
Uniform Delay, d1	86.5		
Progression Factor	1.00		
Incremental Delay, d2	876.2		
Delay (s)	962.6		
Level of Service	F		
Approach Delay (s)	962.6		
Approach LOS	F		

Intersection Summary

HCM 2010 Signalized Intersection Summary
1604: N Miami Ave & NW 167th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1675	51	87	1993	39	243	117	83	66	49	86
Future Volume (veh/h)	128	1675	51	87	1993	39	243	117	83	66	49	86
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	133	1745	53	91	2076	41	253	122	86	69	51	90
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	3202	97	220	3199	63	269	175	123	197	71	125
Arrive On Green	0.04	0.63	0.63	0.03	0.62	0.62	0.10	0.17	0.17	0.04	0.12	0.12
Sat Flow, veh/h	1774	5072	154	1774	5134	101	1774	1018	718	1774	606	1069
Grp Volume(v), veh/h	133	1166	632	91	1370	747	253	0	208	69	0	141
Grp Sat Flow(s),veh/h/ln	1774	1695	1836	1774	1695	1845	1774	0	1736	1774	0	1674
Q Serve(g_s), s	4.1	29.0	29.0	2.8	38.3	38.5	15.0	0.0	16.9	5.1	0.0	12.2
Cycle Q Clear(g_c), s	4.1	29.0	29.0	2.8	38.3	38.5	15.0	0.0	16.9	5.1	0.0	12.2
Prop In Lane	1.00		0.08	1.00		0.05	1.00		0.41	1.00		0.64
Lane Grp Cap(c), veh/h	191	2141	1159	220	2112	1149	269	0	298	197	0	195
V/C Ratio(X)	0.70	0.54	0.55	0.41	0.65	0.65	0.94	0.00	0.70	0.35	0.00	0.72
Avail Cap(c_a), veh/h	266	2141	1159	310	2112	1149	269	0	298	295	0	195
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	15.5	15.5	13.3	17.9	17.9	55.6	0.0	58.4	55.1	0.0	63.9
Incr Delay (d2), s/veh	0.6	0.4	0.6	0.5	1.6	2.9	38.2	0.0	12.7	0.4	0.0	20.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.3	17.1	18.5	2.5	25.4	27.8	17.6	0.0	14.2	4.5	0.0	11.0
LnGrp Delay(d),s/veh	24.4	15.9	16.2	13.8	19.4	20.8	93.8	0.0	71.1	55.5	0.0	84.5
LnGrp LOS	C	B	B	B	B	C	F		E	E		F
Approach Vol, veh/h		1931			2208			461			210	
Approach Delay, s/veh		16.6			19.7			83.6			74.9	
Approach LOS		B			B			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	98.4	9.7	31.3	9.4	99.6	18.0	23.0
Change Period (Y+Rc), s	4.5	* 4.9	3.0	5.5	4.5	* 4.9	3.0	5.5
Max Green Setting (Gmax), s	12.5	* 87	15.0	17.5	12.5	* 87	15.0	17.5
Max Q Clear Time (g_c+I1), s	6.1	40.5	7.1	18.9	4.8	31.0	17.0	14.2
Green Ext Time (p_c), s	0.1	8.0	0.0	0.0	0.1	6.1	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	27.0
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	NBL	SET	SER	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	126	83	196	227	300	1254	43	1497	107
v/c Ratio	0.83	0.59	0.67	1.46	2.13	0.66	0.29	0.98	0.14
Control Delay	104.2	81.2	21.9	283.8	561.4	23.7	33.6	58.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.2	81.2	21.9	283.8	561.4	23.7	33.6	58.0	1.8
Queue Length 50th (ft)	119	77	11	~291	~449	410	25	721	0
Queue Length 95th (ft)	#246	134	92	#483	#664	528	64	#947	17
Internal Link Dist (ft)	585	329		410		390		683	
Turn Bay Length (ft)					190				
Base Capacity (vph)	151	356	461	155	141	1903	146	1528	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.23	0.43	1.46	2.13	0.66	0.29	0.98	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	NBL2	NBL	NBR	SEL	SET	SER	SER2	NWL2	NWL	NWT	NWR	NEL
Lane Configurations												
Traffic Volume (vph)	70	35	14	65	13	3	181	1	138	48	26	282
Future Volume (vph)	70	35	14	65	13	3	181	1	138	48	26	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0				6.0		6.0
Lane Util. Factor		1.00			1.00	1.00				1.00		1.00
Frt		0.98			1.00	0.85				0.98		1.00
Flt Protected		0.96			0.96	1.00				0.97		0.95
Satd. Flow (prot)		1689			1721	1524				1707		1703
Flt Permitted		0.96			0.96	1.00				0.97		0.95
Satd. Flow (perm)		1689			1721	1524				1707		1703
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	74	37	15	69	14	3	193	1	147	51	28	300
RTOR Reduction (vph)	0	0	0	0	0	169	0	0	0	3	0	0
Lane Group Flow (vph)	0	126	0	0	83	27	0	0	0	224	0	300
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Prot	Prot		Split	NA	Prot			Split	NA		Prot
Protected Phases	4	4		8	8	8			7	7		1
Permitted Phases												
Actuated Green, G (s)		13.0			11.8	11.8				13.0		12.0
Effective Green, g (s)		13.0			11.8	11.8				13.0		12.0
Actuated g/C Ratio		0.09			0.08	0.08				0.09		0.08
Clearance Time (s)		6.0			6.0	6.0				6.0		6.0
Vehicle Extension (s)		2.5			2.5	2.5				2.5		2.0
Lane Grp Cap (vph)		151			140	124				153		141
v/s Ratio Prot		c0.07			c0.05	0.02				c0.13		c0.18
v/s Ratio Perm												
v/c Ratio		0.83			0.59	0.22				1.47		2.13
Uniform Delay, d1		64.8			64.2	62.2				65.9		66.4
Progression Factor		1.00			1.00	1.00				1.00		1.00
Incremental Delay, d2		30.5			5.5	0.6				241.7		530.5
Delay (s)		95.3			69.7	62.8				307.6		596.9
Level of Service		F			E	E				F		F
Approach Delay (s)		95.3			64.9					307.6		
Approach LOS		F			E					F		

Intersection Summary			
HCM 2000 Control Delay	103.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	144.8	Sum of lost time (s)	30.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	984	182	12	30	10	1407	101
Future Volume (vph)	984	182	12	30	10	1407	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0				6.0	6.0	6.0
Lane Util. Factor	0.95				1.00	0.95	1.00
Frt	0.98				1.00	1.00	0.85
Flt Protected	1.00				0.95	1.00	1.00
Satd. Flow (prot)	3321				1703	3406	1524
Flt Permitted	1.00				0.18	1.00	1.00
Satd. Flow (perm)	3321				326	3406	1524
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1047	194	13	32	11	1497	107
RTOR Reduction (vph)	0	0	0	0	0	0	59
Lane Group Flow (vph)	1254	0	0	0	43	1497	48
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%
Turn Type	NA			Prot	Perm	NA	Perm
Protected Phases	6			5		2	
Permitted Phases					2		2
Actuated Green, G (s)	83.0				65.0	65.0	65.0
Effective Green, g (s)	83.0				65.0	65.0	65.0
Actuated g/C Ratio	0.57				0.45	0.45	0.45
Clearance Time (s)	6.0				6.0	6.0	6.0
Vehicle Extension (s)	1.0				1.0	1.0	1.0
Lane Grp Cap (vph)	1903				146	1528	684
v/s Ratio Prot	0.38					c0.44	
v/s Ratio Perm					0.13		0.03
v/c Ratio	0.66				0.29	0.98	0.07
Uniform Delay, d1	21.2				25.3	39.3	22.7
Progression Factor	1.00				1.00	1.00	1.00
Incremental Delay, d2	0.6				0.4	18.1	0.0
Delay (s)	21.8				25.8	57.3	22.7
Level of Service	C				C	E	C
Approach Delay (s)	132.8					54.2	
Approach LOS	F					D	

Intersection Summary

HCM 2010 Signalized Intersection Summary
1701: NE 2nd Ct & Miami Gardens Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	1895	16	47	1831	147	29	1	162	208	2	126
Future Volume (veh/h)	41	1895	16	47	1831	147	29	1	162	208	2	126
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	46	2129	18	53	2057	165	33	1	182	235	0	142
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	2	0	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	3210	27	168	2971	237	143	1	127	364	0	208
Arrive On Green	0.03	0.62	0.62	0.03	0.62	0.62	0.08	0.08	0.08	0.10	0.00	0.10
Sat Flow, veh/h	1774	5201	44	1774	4803	383	1774	9	1576	3548	0	1583
Grp Volume(v), veh/h	46	1387	760	53	1448	774	33	0	183	235	0	142
Grp Sat Flow(s),veh/h/ln	1774	1695	1855	1774	1695	1795	1774	0	1585	1774	0	1583
Q Serve(g_s), s	1.4	38.7	38.8	1.6	41.5	42.2	2.5	0.0	11.8	9.3	0.0	12.5
Cycle Q Clear(g_c), s	1.4	38.7	38.8	1.6	41.5	42.2	2.5	0.0	11.8	9.3	0.0	12.5
Prop In Lane	1.00		0.02	1.00		0.21	1.00		0.99	1.00		1.00
Lane Grp Cap(c), veh/h	157	2093	1145	168	2097	1110	143	0	128	364	0	208
V/C Ratio(X)	0.29	0.66	0.66	0.31	0.69	0.70	0.23	0.00	1.43	0.65	0.00	0.68
Avail Cap(c_a), veh/h	223	2093	1145	231	2097	1110	143	0	128	437	0	241
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	18.1	18.1	16.6	18.5	18.7	62.8	0.0	67.1	63.0	0.0	60.5
Incr Delay (d2), s/veh	0.4	1.7	3.0	0.0	0.2	0.3	0.6	0.0	232.0	2.4	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	25.4	28.0	1.2	21.5	23.2	2.3	0.0	24.1	8.2	0.0	9.8
LnGrp Delay(d),s/veh	18.0	19.8	21.2	16.6	18.7	19.0	63.4	0.0	299.1	65.4	0.0	66.8
LnGrp LOS	B	B	C	B	B	B	E		F	E		E
Approach Vol, veh/h		2193			2275			216			377	
Approach Delay, s/veh		20.2			18.8			263.1			65.9	
Approach LOS		C			B			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	96.9		19.0	10.8	96.7		19.5
Change Period (Y+Rc), s	6.4	* 6.6		* 7.2	6.4	* 6.6		4.5
Max Green Setting (Gmax), s	9.6	* 82		* 12	9.6	* 82		18.0
Max Q Clear Time (g_c+I1), s	3.4	44.2		13.8	3.6	40.8		14.5
Green Ext Time (p_c), s	0.0	8.8		0.0	0.0	8.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1053	1002	95	841	480	966	81	564	415	503	299
Future Volume (veh/h)	96	1053	1002	95	841	480	966	81	564	415	503	299
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	100	1097	0	99	876	0	1006	0	644	432	524	0
Adj No. of Lanes	1	2	1	1	2	1	2	0	2	2	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	200	1047	468	155	1045	468	698	0	1007	876	441	375
Arrive On Green	0.07	0.39	0.00	0.07	0.39	0.00	0.20	0.00	0.32	0.12	0.24	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3548	0	3167	3442	1863	1583
Grp Volume(v), veh/h	100	1097	0	99	876	0	1006	0	644	432	524	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1721	1863	1583
Q Serve(g_s), s	4.7	35.5	0.0	4.6	26.9	0.0	23.6	0.0	20.9	11.2	28.4	0.0
Cycle Q Clear(g_c), s	4.7	35.5	0.0	4.6	26.9	0.0	23.6	0.0	20.9	11.2	28.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	1047	468	155	1045	468	698	0	1007	876	441	375
V/C Ratio(X)	0.50	1.05	0.00	0.64	0.84	0.00	1.44	0.00	0.64	0.49	1.19	0.00
Avail Cap(c_a), veh/h	238	1047	468	193	1045	468	698	0	1007	1156	441	375
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.00	0.09	0.09	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.9	36.4	0.0	31.6	33.8	0.0	48.2	0.0	35.0	28.8	45.8	0.0
Incr Delay (d2), s/veh	0.5	36.5	0.0	0.2	0.8	0.0	206.9	0.0	1.2	0.2	105.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	40.6	0.0	3.0	15.0	0.0	56.8	0.0	14.3	9.1	49.5	0.0
LnGrp Delay(d),s/veh	30.4	72.9	0.0	31.8	34.6	0.0	255.1	0.0	36.3	29.0	151.4	0.0
LnGrp LOS	C	F		C	C		F		D	C	F	
Approach Vol, veh/h		1197			975			1650			956	
Approach Delay, s/veh		69.4			34.3			169.7			96.1	
Approach LOS		E			C			F			F	

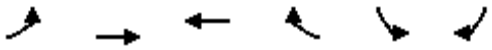
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	42.5	20.2	44.8	12.4	42.6	30.0	35.0
Change Period (Y+Rc), s	6.0	7.1	6.4	* 6.6	6.0	7.1	6.4	* 6.6
Max Green Setting (Gmax), s	9.0	32.9	23.6	* 28	9.0	32.9	23.6	* 28
Max Q Clear Time (g_c+I1), s	6.7	28.9	13.2	22.9	6.6	37.5	25.6	30.4
Green Ext Time (p_c), s	0.0	1.2	0.7	1.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	102.2
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



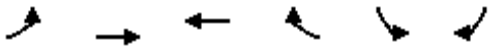
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	851	1383	1456	547	788	56
v/c Ratio	0.95	0.39	1.08	0.35	1.15	0.16
Control Delay	55.8	0.2	85.4	0.6	126.4	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	0.2	85.4	0.6	126.4	11.9
Queue Length 50th (ft)	346	0	~664	0	~369	1
Queue Length 95th (ft)	m358	m0	#803	0	#493	36
Internal Link Dist (ft)		851	430		520	
Turn Bay Length (ft)	415			400		240
Base Capacity (vph)	904	3539	1348	1583	686	360
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.39	1.08	0.35	1.15	0.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	817	1328	1398	525	756	54
Future Volume (vph)	817	1328	1398	525	756	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	2.0	6.4	4.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	851	1383	1456	547	788	56
RTOR Reduction (vph)	0	0	0	0	0	44
Lane Group Flow (vph)	851	1383	1456	547	788	12
Turn Type	Prot	NA	NA	Free	Prot	Perm
Protected Phases	1	6 8!	2		4!	
Permitted Phases				Free		4
Actuated Green, G (s)	31.5	120.0	45.7	120.0	24.0	24.0
Effective Green, g (s)	31.5	120.0	45.7	120.0	24.0	24.0
Actuated g/C Ratio	0.26	1.00	0.38	1.00	0.20	0.20
Clearance Time (s)	6.4		6.4		6.0	6.0
Vehicle Extension (s)	3.5		1.0		3.0	3.0
Lane Grp Cap (vph)	901	3539	1347	1583	686	316
v/s Ratio Prot	c0.25	0.39	c0.41		c0.23	
v/s Ratio Perm				0.35		0.01
v/c Ratio	0.94	0.39	1.08	0.35	1.15	0.04
Uniform Delay, d1	43.4	0.0	37.1	0.0	48.0	38.7
Progression Factor	1.01	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7	0.0	49.5	0.6	83.2	0.0
Delay (s)	54.7	0.0	86.7	0.6	131.2	38.7
Level of Service	D	A	F	A	F	D
Approach Delay (s)		20.9	63.2		125.1	
Approach LOS		C	E		F	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

HCM 2010 Signalized Intersection Summary
1801: NE 205th Terrace/NE 16th Ave & Ives Dairy Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	1970	38	115	2741	156	83	3	228	206	5	85
Future Volume (veh/h)	52	1970	38	115	2741	156	83	3	228	206	5	85
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	54	2052	40	120	2855	162	86	3	238	215	5	89
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	3356	65	229	3246	181	227	168	203	292	9	167
Arrive On Green	0.04	0.87	0.87	0.05	0.88	0.88	0.06	0.09	0.09	0.08	0.11	0.11
Sat Flow, veh/h	1774	5135	100	1774	4930	275	1774	1863	1583	1774	85	1511
Grp Volume(v), veh/h	54	1354	738	120	1947	1070	86	3	238	215	0	94
Grp Sat Flow(s),veh/h/ln	1774	1695	1845	1774	1695	1814	1774	1863	1583	1774	0	1596
Q Serve(g_s), s	1.3	14.5	14.5	2.9	39.3	44.1	5.7	0.2	11.7	10.0	0.0	7.2
Cycle Q Clear(g_c), s	1.3	14.5	14.5	2.9	39.3	44.1	5.7	0.2	11.7	10.0	0.0	7.2
Prop In Lane	1.00		0.05	1.00		0.15	1.00		1.00	1.00		0.95
Lane Grp Cap(c), veh/h	139	2216	1206	229	2233	1195	227	168	203	292	0	176
V/C Ratio(X)	0.39	0.61	0.61	0.52	0.87	0.90	0.38	0.02	1.17	0.74	0.00	0.53
Avail Cap(c_a), veh/h	203	2216	1206	284	2233	1195	263	168	203	292	0	176
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	3.9	3.9	8.6	5.2	5.5	49.9	53.9	56.7	50.8	0.0	54.6
Incr Delay (d2), s/veh	0.7	1.3	2.3	0.1	0.5	1.1	0.4	0.0	118.3	8.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	11.1	12.4	2.0	19.4	23.1	5.0	0.2	25.1	5.9	0.0	6.0
LnGrp Delay(d),s/veh	25.1	5.2	6.2	8.6	5.7	6.6	50.3	53.9	175.0	59.0	0.0	57.1
LnGrp LOS	C	A	A	A	A	A	D	D	F	E		E
Approach Vol, veh/h		2146			3137			327			309	
Approach Delay, s/veh		6.0			6.1			141.1			58.5	
Approach LOS		A			A			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	91.7	13.0	18.0	7.9	91.1	10.3	20.7
Change Period (Y+Rc), s	3.0	6.1	3.0	* 6.3	3.0	6.1	3.0	* 6.3
Max Green Setting (Gmax), s	9.0	80.9	10.0	* 12	9.0	80.9	10.0	* 12
Max Q Clear Time (g_c+I1), s	3.3	46.1	12.0	13.7	4.9	16.5	7.7	9.2
Green Ext Time (p_c), s	0.0	28.1	0.0	0.0	0.0	44.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1802: SB On-Ramp/SB Off-Ramp & Ives Dairy Rd

2045 No Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1726	551	878	2002	0	0	0	0	1266	0	889
Future Volume (veh/h)	0	1726	551	878	2002	0	0	0	0	1266	0	889
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	0	1881
Adj Flow Rate, veh/h	0	1798	0	915	2085	0				1319	0	0
Adj No. of Lanes	0	5	1	2	2	0				3	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	1	1	0				1	0	1
Cap, veh/h	0	3205	673	959	2371	0				1398	0	442
Arrive On Green	0.00	0.56	0.00	0.29	0.88	0.00				0.28	0.00	0.00
Sat Flow, veh/h	0	7976	1599	3476	3668	0				5052	0	1599
Grp Volume(v), veh/h	0	1798	0	915	2085	0				1319	0	0
Grp Sat Flow(s),veh/h/ln	0	1524	1599	1738	1787	0				1684	0	1599
Q Serve(g_s), s	0.0	30.3	0.0	39.2	61.3	0.0				51.1	0.0	0.0
Cycle Q Clear(g_c), s	0.0	30.3	0.0	39.2	61.3	0.0				51.1	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3205	673	959	2371	0				1398	0	442
V/C Ratio(X)	0.00	0.56	0.00	0.95	0.88	0.00				0.94	0.00	0.00
Avail Cap(c_a), veh/h	0	3205	673	1263	2371	0				1528	0	484
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.66	0.00	0.41	0.41	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.2	0.0	45.2	7.6	0.0				70.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.0	6.1	2.2	0.0				11.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	17.5	0.0	30.7	35.5	0.0				33.5	0.0	0.0
LnGrp Delay(d),s/veh	0.0	32.7	0.0	51.3	9.8	0.0				82.0	0.0	0.0
LnGrp LOS		C		D	A					F		
Approach Vol, veh/h		1798			3000						1319	
Approach Delay, s/veh		32.7			22.4						82.0	
Approach LOS		C			C						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		138.2			48.5	89.6		61.8
Change Period (Y+Rc), s		5.5			* 5.4	5.5		6.5
Max Green Setting (Gmax), s		127.5			* 61	61.5		60.5
Max Q Clear Time (g_c+I1), s		63.3			41.2	32.3		53.1
Green Ext Time (p_c), s		30.7			1.9	19.9		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1803: NB Off-Ramp/NB On-Ramp & Ives Dairy Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	692	2618	0	0	2442	0	396	68	728	0	0	0
Future Volume (veh/h)	692	2618	0	0	2442	0	396	68	728	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	0	1863	1863	1863			
Adj Flow Rate, veh/h	721	2727	0	0	2544	0	412	71	0			
Adj No. of Lanes	2	3	0	0	4	0	2	1	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.94			
Percent Heavy Veh, %	2	2	0	0	2	0	2	2	2			
Cap, veh/h	1218	4142	0	0	2756	0	436	229	195			
Arrive On Green	0.47	1.00	0.00	0.00	0.57	0.00	0.12	0.12	0.00			
Sat Flow, veh/h	3442	5253	0	0	6929	0	3548	1863	1583			
Grp Volume(v), veh/h	721	2727	0	0	2544	0	412	71	0			
Grp Sat Flow(s),veh/h/ln	1721	1695	0	0	1602	0	1774	1863	1583			
Q Serve(g_s), s	30.7	0.0	0.0	0.0	72.0	0.0	23.0	7.0	0.0			
Cycle Q Clear(g_c), s	30.7	0.0	0.0	0.0	72.0	0.0	23.0	7.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.00	1.00		1.00			
Lane Grp Cap(c), veh/h	1218	4142	0	0	2756	0	436	229	195			
V/C Ratio(X)	0.59	0.66	0.00	0.00	0.92	0.00	0.94	0.31	0.00			
Avail Cap(c_a), veh/h	1218	4142	0	0	3233	0	436	229	195			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	1.00	0.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	42.3	0.0	0.0	0.0	39.8	0.0	87.0	80.0	0.0			
Incr Delay (d2), s/veh	0.3	0.5	0.0	0.0	6.6	0.0	29.0	0.3	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	19.4	0.3	0.0	0.0	42.2	0.0	19.0	6.5	0.0			
LnGrp Delay(d),s/veh	42.6	0.5	0.0	0.0	46.4	0.0	116.0	80.2	0.0			
LnGrp LOS	D	A			D		F	F				
Approach Vol, veh/h		3448			2544			483				
Approach Delay, s/veh		9.3			46.4			110.8				
Approach LOS		A			D			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	76.9	92.1		31.0		169.0		
Change Period (Y+Rc), s	6.1	* 6.1		6.4		6.1		
Max Green Setting (Gmax), s	56.1	* 1E2		24.6		162.9		
Max Q Clear Time (g_c+I1), s	32.7	74.0		25.0		2.0		
Green Ext Time (p_c), s	15.0	12.0		0.0		26.4		

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1804: Highland Lakes Blvd & Ives Dairy Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	327	1899	1073	55	2830	17	796	49	13	15	80	446
Future Volume (veh/h)	327	1899	1073	55	2830	17	796	49	13	15	80	446
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	334	1938	0	56	2888	17	860	0	0	15	82	455
Adj No. of Lanes	1	3	1	1	3	0	3	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	231	3388	1055	183	3044	18	703	246	0	153	161	306
Arrive On Green	0.10	0.65	0.00	0.02	0.57	0.57	0.13	0.00	0.00	0.08	0.08	0.08
Sat Flow, veh/h	1810	5187	1615	1810	5321	31	5429	1900	0	1810	1900	1615
Grp Volume(v), veh/h	334	1938	0	56	1875	1030	860	0	0	15	82	455
Grp Sat Flow(s),veh/h/ln	1810	1729	1615	1810	1729	1894	1810	1900	0	1810	1900	1615
Q Serve(g_s), s	21.0	41.4	0.0	2.6	101.4	102.0	25.9	0.0	0.0	1.5	8.3	16.9
Cycle Q Clear(g_c), s	21.0	41.4	0.0	2.6	101.4	102.0	25.9	0.0	0.0	1.5	8.3	16.9
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	3388	1055	183	1978	1084	703	246	0	153	161	306
V/C Ratio(X)	1.44	0.57	0.00	0.31	0.95	0.95	1.22	0.00	0.00	0.10	0.51	1.49
Avail Cap(c_a), veh/h	231	3388	1055	330	1978	1084	703	246	0	153	161	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.2	19.2	0.0	18.9	40.0	40.1	87.0	0.0	0.0	84.5	87.6	81.1
Incr Delay (d2), s/veh	222.0	0.7	0.0	0.3	11.2	17.8	113.0	0.0	0.0	0.2	2.1	235.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	48.7	27.3	0.0	2.3	63.0	71.1	36.6	0.0	0.0	1.4	7.9	66.5
LnGrp Delay(d),s/veh	298.2	19.9	0.0	19.3	51.2	57.9	200.0	0.0	0.0	84.7	89.7	316.8
LnGrp LOS	F	B		B	D	E	F			F	F	F
Approach Vol, veh/h		2272			2961			860			552	
Approach Delay, s/veh		60.8			52.9			200.0			276.7	
Approach LOS		E			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.0	121.0		32.0	7.8	137.2		23.0
Change Period (Y+Rc), s	3.0	6.6		6.1	3.0	6.6		6.1
Max Green Setting (Gmax), s	21.0	114.4		25.9	21.0	114.4		16.9
Max Q Clear Time (g_c+I1), s	23.0	104.0		27.9	4.6	43.4		18.9
Green Ext Time (p_c), s	0.0	9.5		0.0	0.0	44.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	93.3
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Appendix H

TIER 1 EVALUATION MATRIX

Tier 1 Concept Evaluation

Legend: X Fatal Flaw, removed from further analysis. ✓ Advanced to Tier 2 Analysis ● Requires Policy Change and can be incorporated to other Alternatives without major alterations to infrastructure

Concepts			Result				Cost				Environmental			Public
				Traffic	Access	Design	Constructability/ MOT	Right-of-way	O&M	Construction	Noise	Lighting	Viewshed	Community
No Build	No Build		✓	High	Low	Low	Low	Low	High	Low	Low	Low	Low	Low
At-Grade Widening	Center EL/ Non-Reversible	Hard Barrier	✓	Low	Low	Medium	Low	High	Medium	Medium	Low	Low	Low	High
		Delineators	✓						High					
		Virtual	✓						Low					
	Asymmetrical EL/ Non-Reversible	Hard Barrier	✓	Low	Low	Medium	Low	High	Medium	Medium	Low	Low	Low	High
		Delineators	X			Fatal			High					
		Virtual	X			Fatal			Low					
	Center EL/ Fully Reversible	Hard Barrier	X	Fatal	Low	Medium	Low	Medium	High	Low	Low	Low	Low	High
	Asymmetrical EL/ Fully Reversible	Hard Barrier	X	Fatal	Low	Medium	Low	Medium	High	Low	Low	Low	Low	High
	Center EL/ Partial Reversible	Hard Barrier	✓	Medium	Low	Medium	Medium	High	High	Medium	Low	Low	Low	High
		Delineators	✓						High					
		Virtual	✓						High					
	Asymmetrical EL/ Partial Reversible	Hard Barrier	✓	Medium	Low	Medium	Medium	High	High	Medium	Low	Low	Low	High
		Delineators	X			Fatal			High					
		Virtual	X			Fatal			High					
Elevated GPL One-way each level	With EL		X	Low	Fatal	Medium	High	Medium	Medium	High	High	High	High	High
	Without EL		X	Medium	Fatal		High	Low	Medium	High	High	High	High	High
At-Grade GPL & Elevated EL	One-Way EL At-Grade and One-Way EL Elevated		✓	Low	Medium	Medium	High	Medium	Medium	High	High	High	High	High
	Two-Way - Non-Reversible EL		✓	Low	Medium	Medium	High	Low	Medium	High	High	High	High	High
	Two-Way - Fully Reversible EL		X	Fatal	Medium	Medium	High	Low	High	High	High	High	High	High
	Two-Way - Asymmetrical EL		✓	Low	Medium	Medium	High	Low	High	High	High	High	High	High
	Unbalanced Reversible, Partially Elevated Center EL		✓	Low	Medium	Medium	High	Low	High	High	High	High	High	High
	Over SR 7/US 441 EL		X	Low	High	High	High	Fatal	High	High	High	High	High	Fatal
Same iterations from above but can mix and match segments (i.e. elevated to north, at-grade to south) for a total of five (5) alternatives			Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies
Dedicated Truck EL			●	High	Medium	Low	Medium	Medium	Low	Medium	Low	Low	Low	Low

Legend: X Fatal Flaw, removed from further analysis. ☑ Advanced to Tier 2 Analysis ● Requires Policy Change and can be incorporated to other Alternatives without major alterations to infrastructure

Concepts			Result				Cost				Environmental			Public
				Traffic	Access	Design	Constructability/ MOT	Right-of-way	O&M	Construction	Noise	Lighting	Viewshed	Community
Dedicated Bus Lanes	With Park-n-Ride		●	High	Medium	Low	Medium	Medium	Low	Medium	Low	Low	Low	Low
Dedicated Bus Lanes	Without Park-n-Ride		●	High	Medium	Low	Medium	Medium	Low	Medium	Low	Low	Low	Low
Frontage Road / C-D Systems			●	Low	Medium	Medium	High	Medium	Low	High	Medium	Medium	Low	Medium
Super EL (i.e. additional toll within EL)	Extra Toll for Reduced Congestion		●	Low	Low	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	High
Dedicated O-D facility (i.e. Downtown to Turnpike, Downtown to Broward, etc.)	With additional toll		●	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Medium
	Without additional toll		●	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Low
Tunnel GPL	At-Grade EL	One-Way Tunnel and One-Way above	X	Low	Fatal	High	High	Medium	High	High	Low	Low	Low	Medium
		Two-Way - Non-Reversible	X	Low	Fatal	High	High	Medium	High	High	Low	Low	Low	Medium
		Two-Way - Fully Reversible	X	Medium	Fatal	High	High	Medium	High	High	Low	Low	Low	Medium
		Two-Way - Partial Reversible	X	Low	Fatal	High	High	Medium	High	High	Low	Low	Low	Medium
Tunnel	One-Way Tunnel	One-Way At-Grade	☑	Low	High	High	High	Medium	High	High	Low	Low	Low	Medium
Tunnel EL Lanes	At-Grade GP	Two-Way - Non-Reversible	☑	Low	Medium	Medium	High	Medium	High	High	Low	Low	Low	Medium
		Two-Way - Fully Reversible	X	Fatal	Medium	Medium	High	Medium	High	High	Low	Low	Low	Medium
		Two-Way – Partial Reversible	☑	Low	Medium	Medium	High	Medium	High	High	Low	Low	Low	Medium
At-Grade Partial Reversible GPL/ Asymmetrical	With EL		X	Fatal	Low	Medium	Medium	High	Medium	Medium	Low	Low	Low	Low
	Without EL		X	Fatal	Low	Medium	Medium	Low	Medium	Medium	Low	Low	Low	Low

Notes: (1) – Although the directional split of traffic does not support the application of peak-hour reversible express lanes, an iteration of this concept, with partially reversible lanes, was further analyzed in Tier 2.

Appendix I

TIER 2 CONCEPT TYPICAL SECTIONS

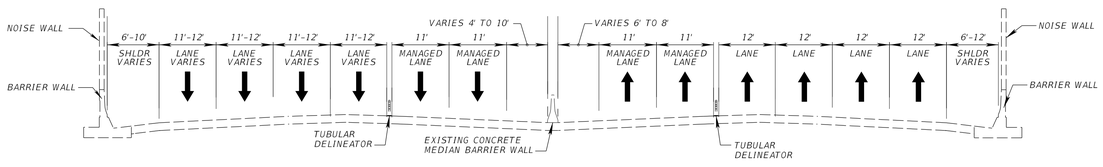
INTERSTATE 95 Corridor Planning Study

for Operational Deficiencies US-1/SR 5 to Broward County Line

FDOT DISTRICT SIX

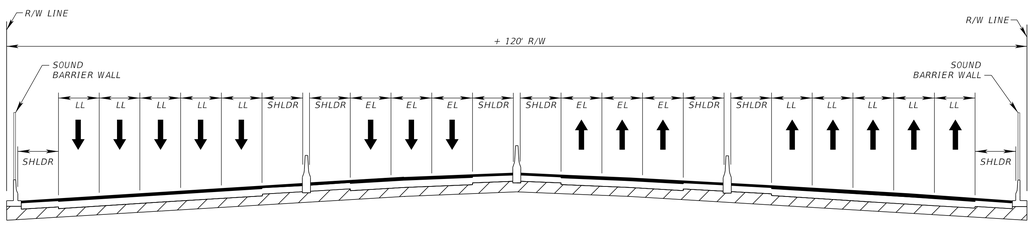
TYPICAL SECTIONS | TIER 2 ALTERNATIVES

1.



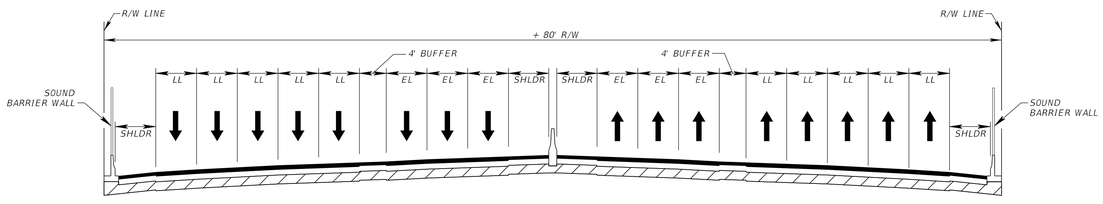
ALTERNATIVE 1
NO BUILD

2.



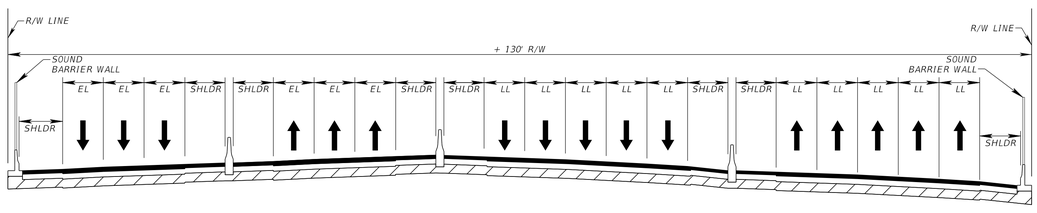
ALTERNATIVE 2
AT-GRADE WIDENING
NON-REVERSIBLE CENTER EL
WITH HARD BARRIER

3.



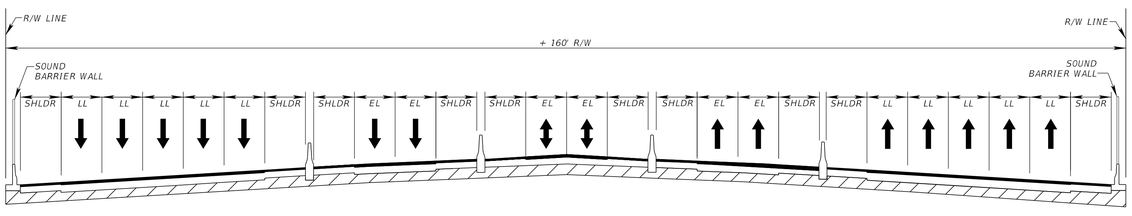
ALTERNATIVE 3
AT-GRADE WIDENING
NON-REVERSIBLE CENTER EL
WITH VIRTUAL BARRIER

4.



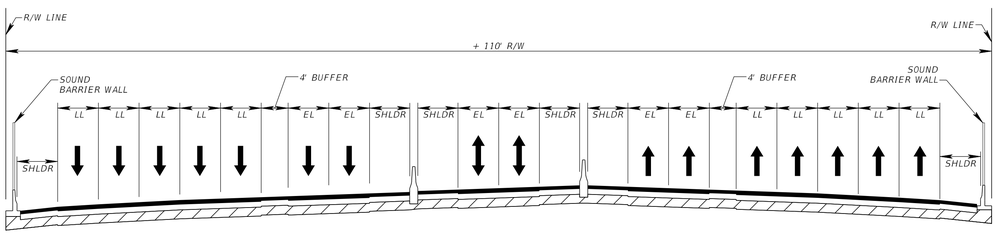
ALTERNATIVE 4
AT-GRADE WIDENING
NON REVERSIBLE ASYMMETRICAL EL
WITH HARD BARRIER

5.



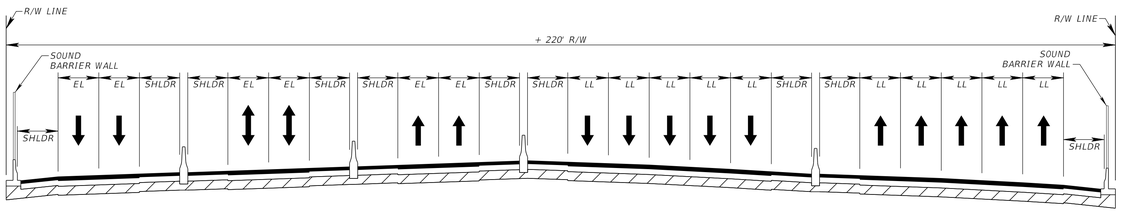
ALTERNATIVE 5
AT-GRADE WIDENING
UNBALANCED REVERSIBLE CENTER EL
WITH HARD BARRIER

6.



ALTERNATIVE 6
AT-GRADE WIDENING
UNBALANCED REVERSIBLE CENTER EL
WITH VIRTUAL BARRIER

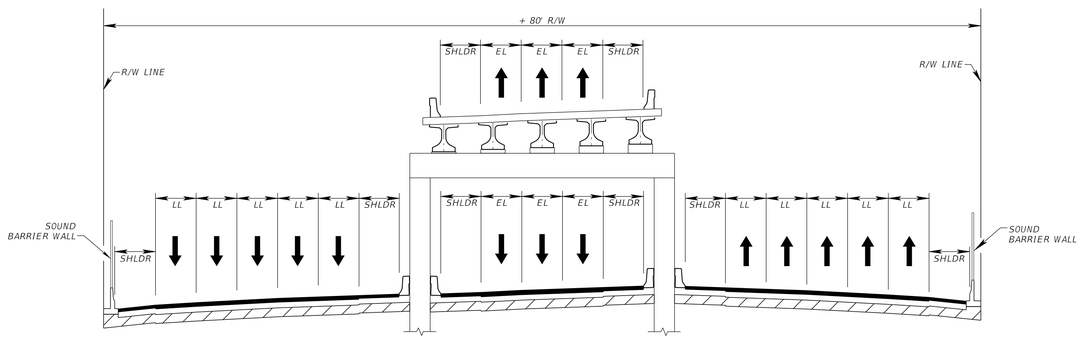
7.



ALTERNATIVE 7
AT-GRADE WIDENING
UNBALANCED REVERSIBLE ASYMMETRICAL EL
WITH HARD BARRIER

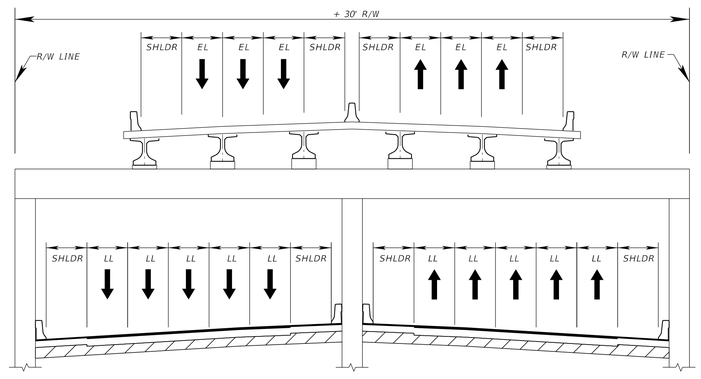
NOTE: NUMBER OF LANES SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
FINAL LANEAGE TO BE DETERMINED AT A LATER DATE.

8.



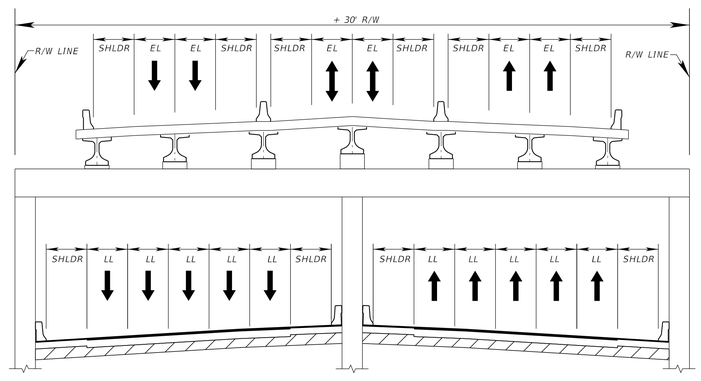
ALTERNATIVE 8
AT-GRADE LL & ELEVATED / STACKED EL
ONE-WAY EL AT-GRADE & ONE-WAY ELEVATED

9.



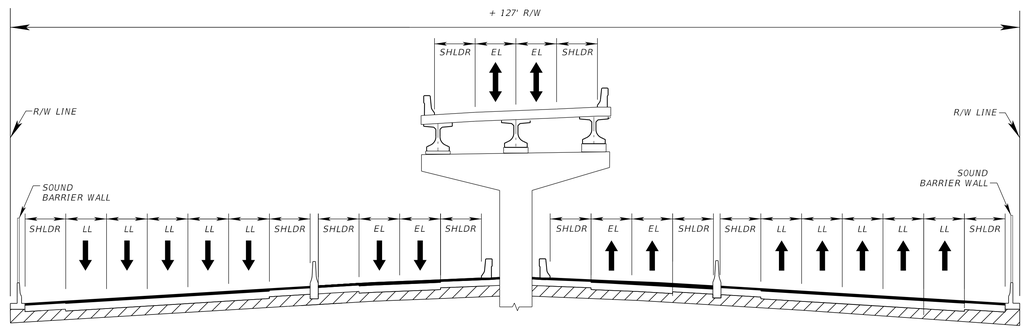
ALTERNATIVE 9
AT-GRADE LL & ELEVATED EL
TWO-WAY, NON-REVERSIBLE EL

10.



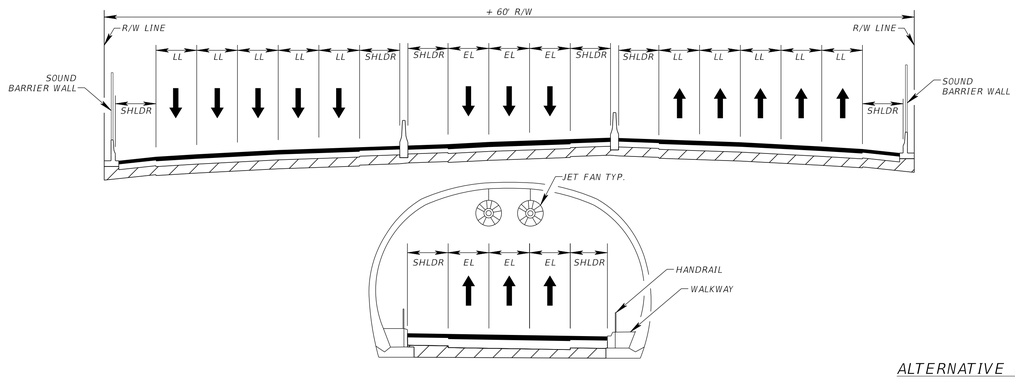
ALTERNATIVE 10
AT-GRADE LL & ELEVATED EL
TWO-WAY, UNBALANCED REVERSIBLE EL

11.



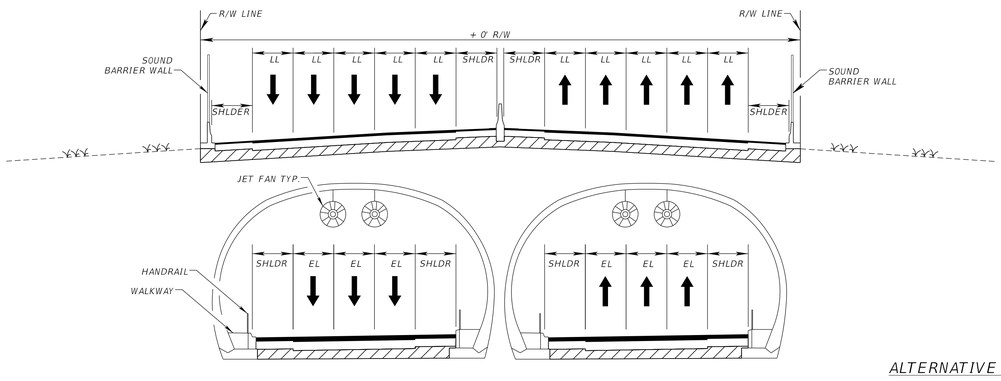
ALTERNATIVE 11
AT-GRADE LL & ELEVATED EL
UNBALANCED REVERSIBLE PARTIALLY ELEVATED CENTER EL
WITH HARD BARRIER

12.



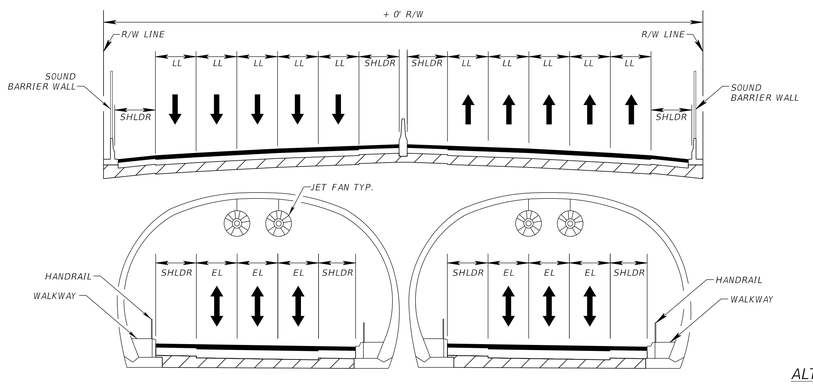
ALTERNATIVE 12
TUNNEL
ONE-WAY TUNNEL EL
ONE-WAY AT-GRADE EL

13.



ALTERNATIVE 13
TUNNEL
TWO-WAY, NON-REVERSIBLE TUNNEL EL
AT-GRADE LL

14.



ALTERNATIVE 14
TUNNEL EL
AT-GRADE LL
TWO-WAY, FULLY REVERSIBLE TUNNEL EL

Appendix J

BUILD CONCEPT 1 CONCEPTUAL PLANS

FDOT DISTRICT SIX

Concept 1 | Segment 1 - US-1 to North of SR 836

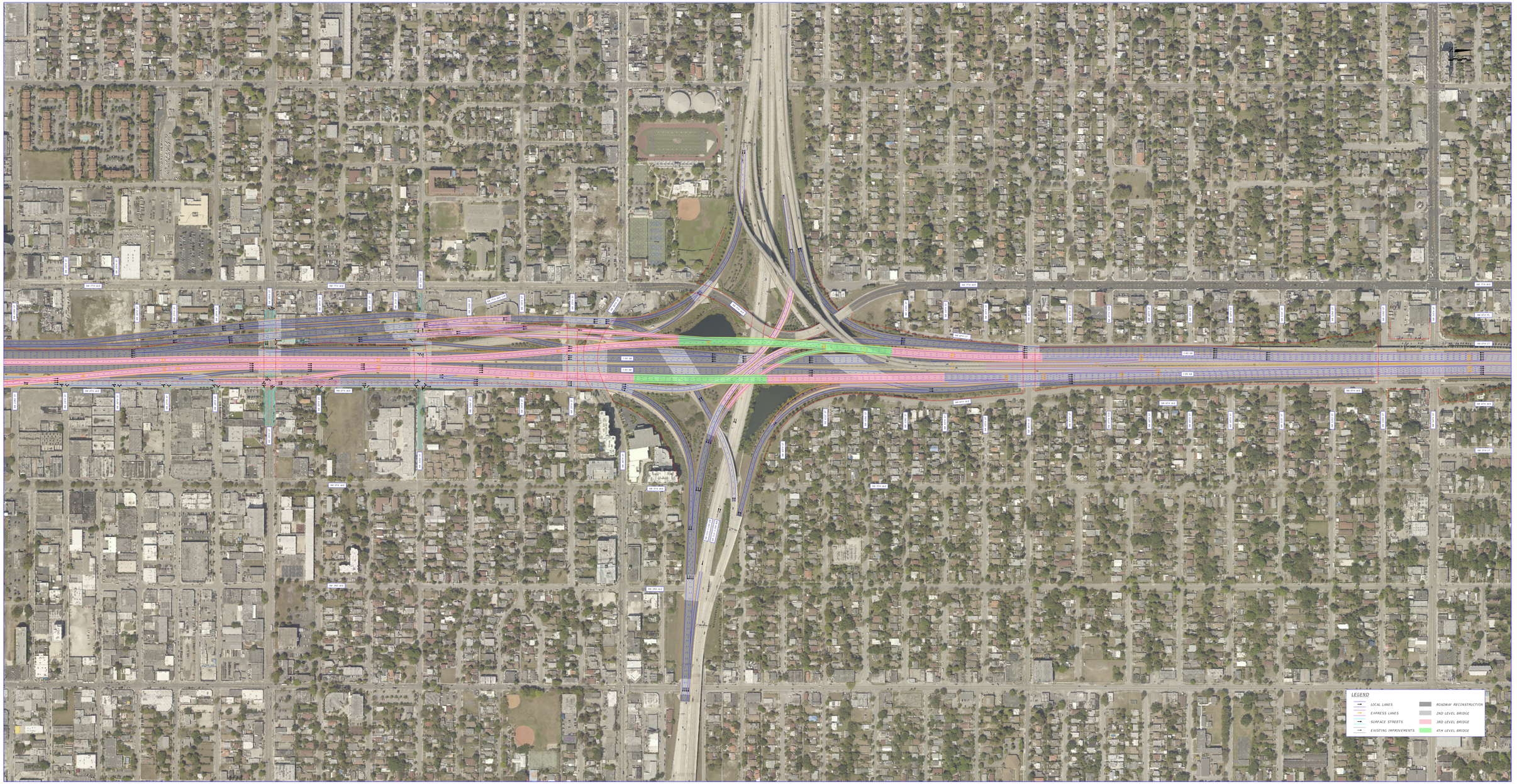
for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

FDOT DISTRICT SIX

Concept 1 | Segment 2 - South of I-195 to North of I-195

for Operational Deficiencies US-1/SR 5 to Broward County Line

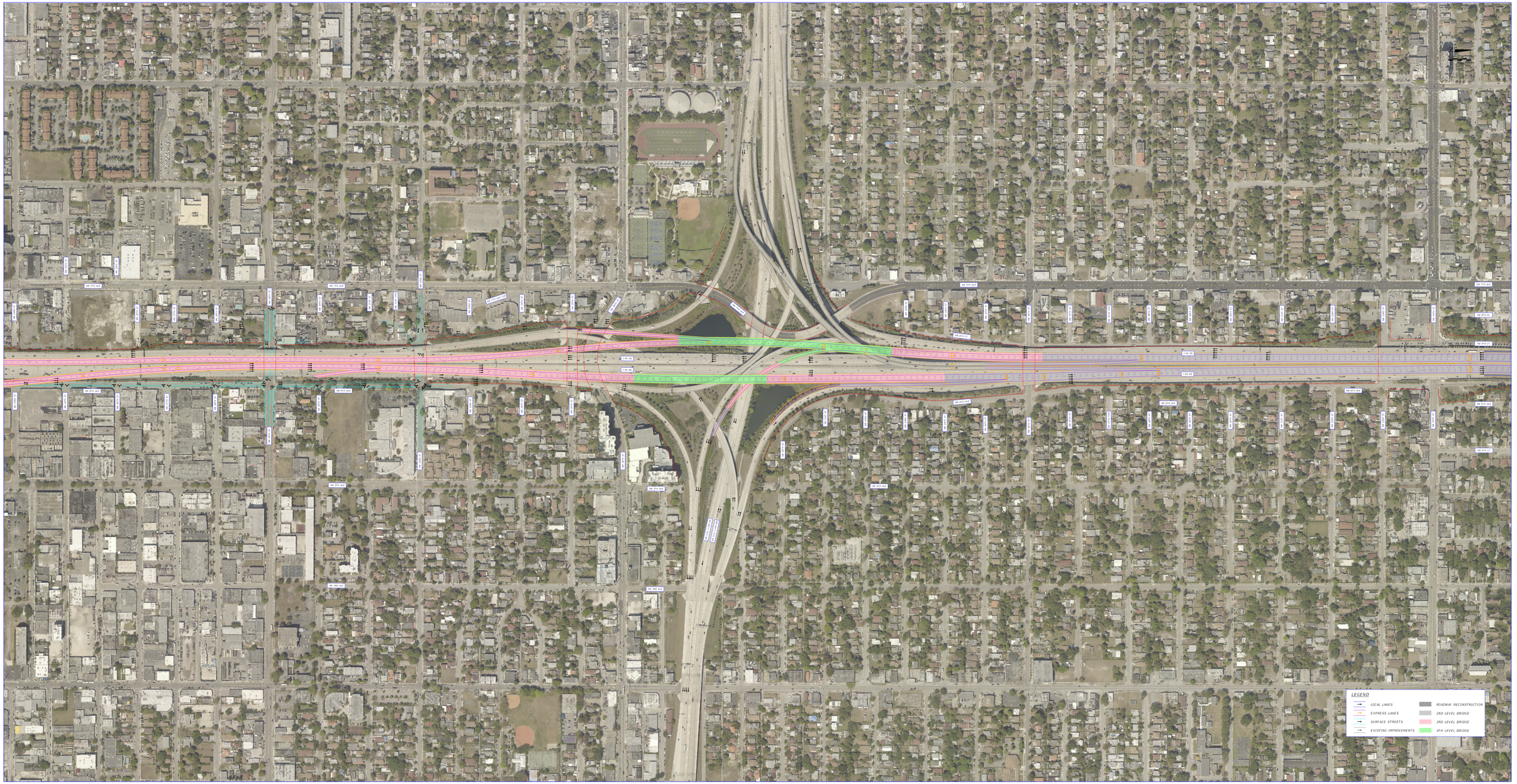


MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Concept 1 | Segment 2 - South of I-195 to North of I-195

for Operational Deficiencies US-1/SR 5 to Broward County Line



MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Concept 1 | Segment 2 - South of I-195 to North of I-195

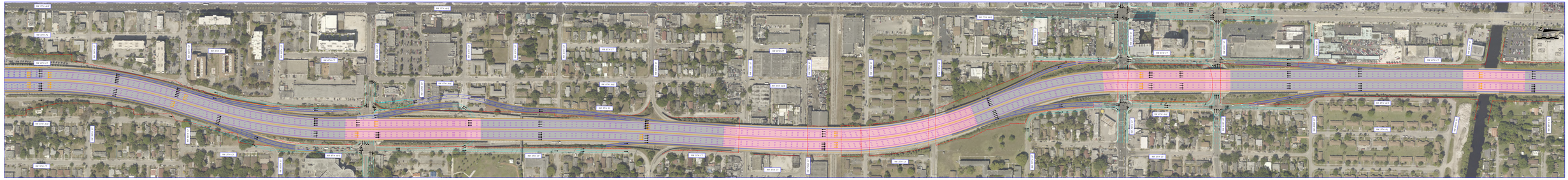
for Operational Deficiencies US-1/SR 5 to Broward County Line

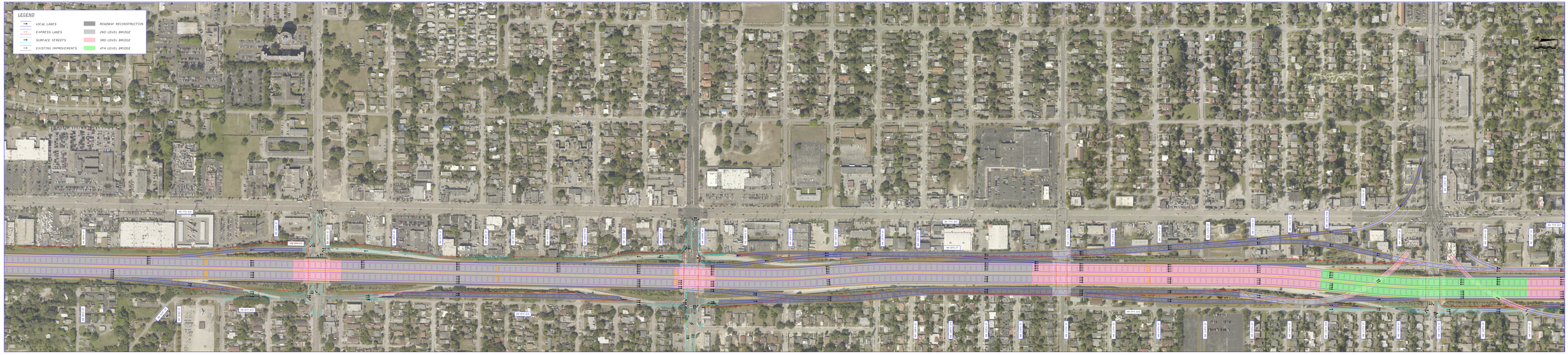
MIAMI-DADE COUNTY

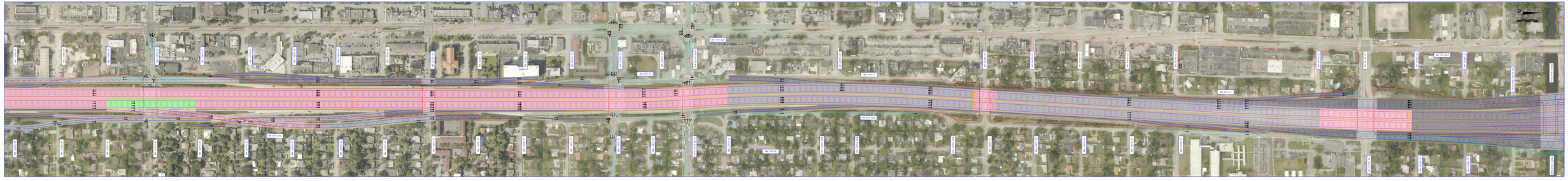
FDOT DISTRICT SIX

Concept 1 | Segment 3 - North of I-95 to South of GGI

for Operational Deficiencies US-1/SR 5 to Broward County Line





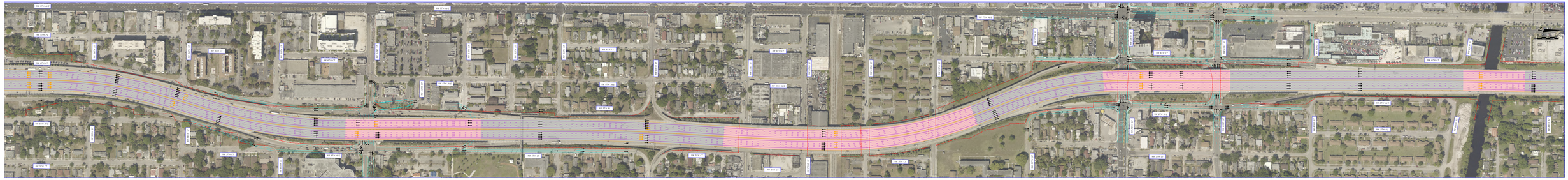


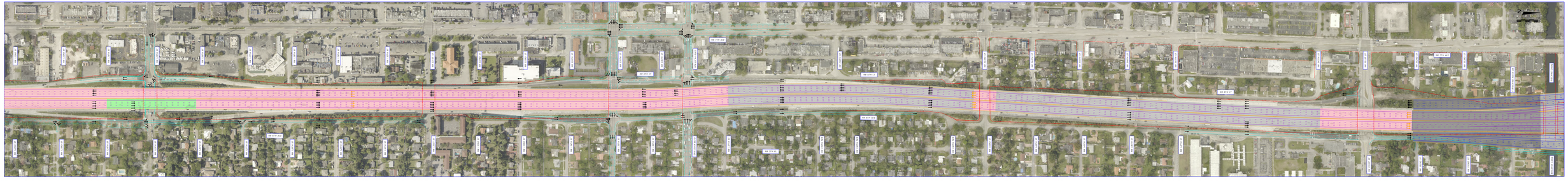
MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Concept 1 | Segment 3 - North of I-95 to South of GGI

for Operational Deficiencies US-1/SR 3 to Broward County Line



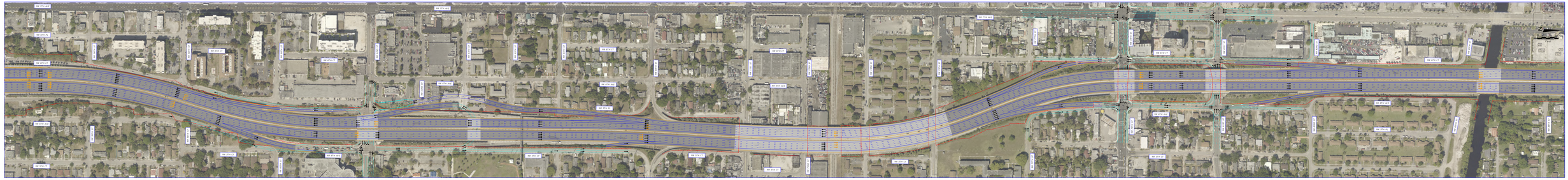


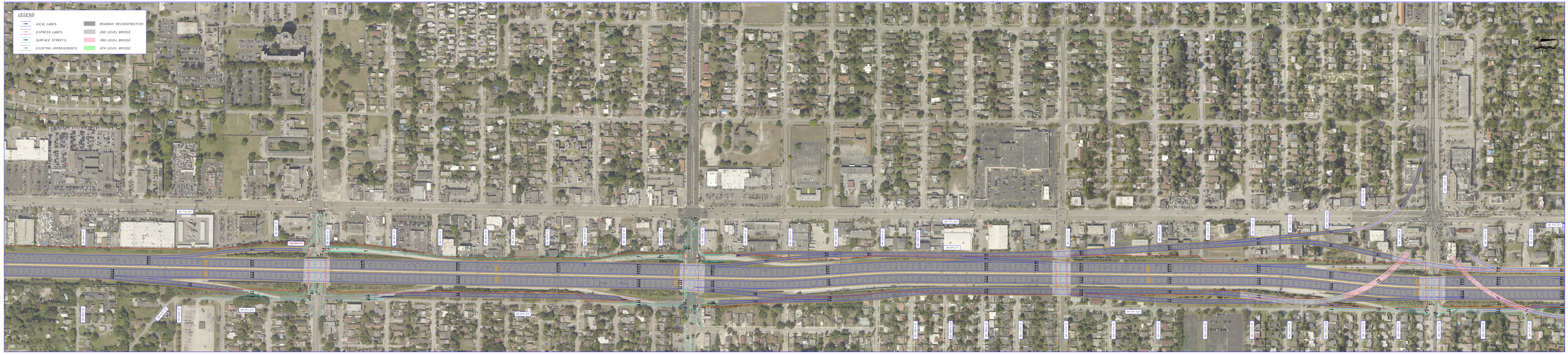
MIAMI-DADE COUNTY

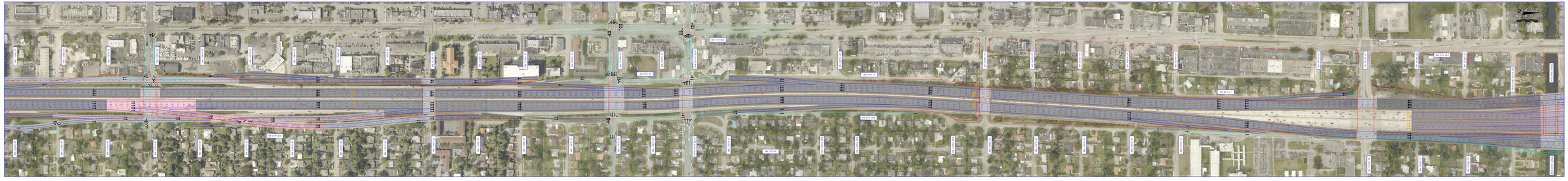
FDOT DISTRICT SIX

Concept 1 | Segment 3 - North of I-95 to South of GGI

for Operational Deficiencies US-1/SR 3 to Broward County Line







MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Concept 1 | Segment 4 - Golden Glades Interchange (GGI)

for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Concept 1 | Segment 5 - North of GGI to County Line

for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

MIAMI-DADE COUNTY

Appendix K

BUILD CONCEPT 2 CONCEPTUAL PLANS

FDOT DISTRICT SIX

Build Concept 2 | Segment 1 - US-1 to North of SR 836

for Operational Deficiencies US-1/SR 5 to Broward County Line

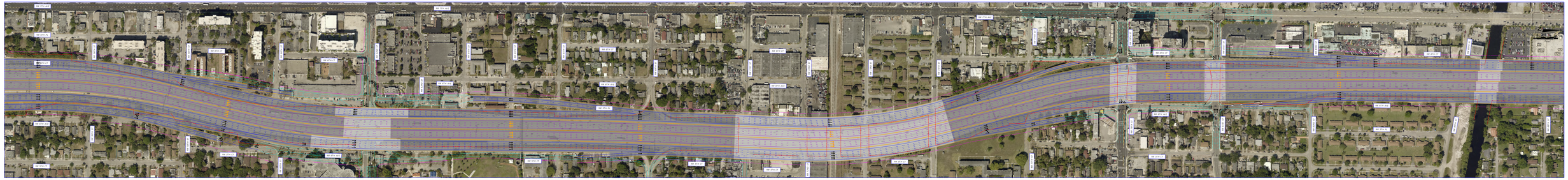
MIAMI-DADE COUNTY

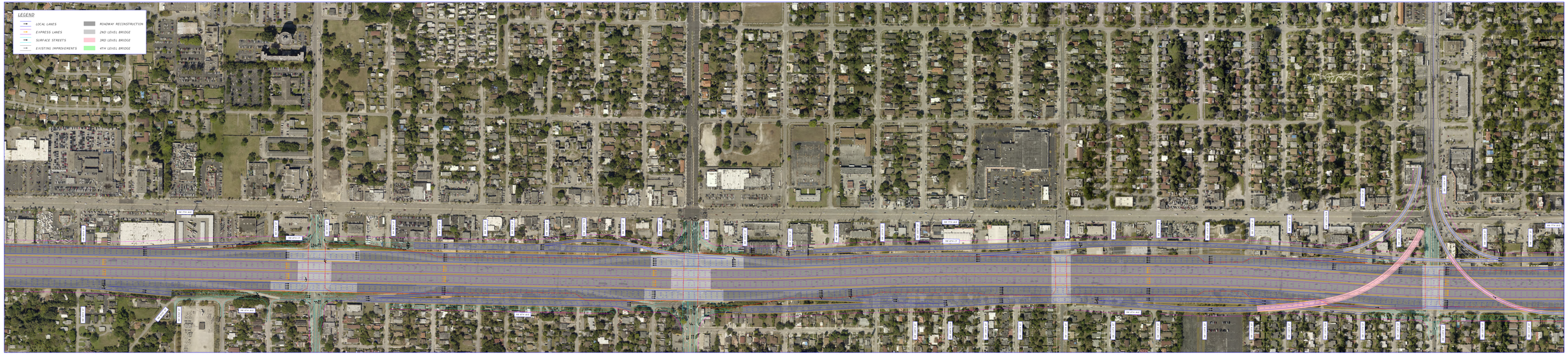
LEGEND
EXISTING IMPROVEMENTS
LOCAL LANES
EXPRESS LANES
SURFACE STREETS
ROADWAY RECONSTRUCTION
2ND LEVEL BRIDGE
4TH LEVEL BRIDGE

FDOT DISTRICT SIX

Build Concept 2 | Segment 3 - North of I-195 to South of GGI

for Operational Deficiencies US-1/SR 5 to Broward County Line





MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Build Concept 2 | Segment 4 - Golden Glades Interchange (GGI)

for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Build Concept 2 | Segment 5 - North of GGI to County Line

for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

MIAMI-DADE COUNTY

Appendix L

BUILD CONCEPT 1 COST AND RIGHT OF WAY ESTIMATES

Concept 1 Cost Estimates

	NEW CONSTRUCTION	STRUCTURES	RETAINING WALL	NOISE WALL (16')	LENGTH (FEET)	LENGTH (LANE/MILE)	NUMBER OF LANES	ITS	CONTINGENCY	MOT	CONSTRUCTION COST	TOTAL COST (Design, Construction, and CEI)	TOTAL COST PER SEGMENT
Segment 1	X					22.6					$ 36,169,008.00	$ 43,402,809.60	
		X									$ 1,428,379,285.00	$ 1,714,055,142.00	
			X								$ 34,771,156.00	$ 41,725,387.20	
				16	28600						$ 13,728,000.00	$ 16,473,600.00	$ 2,618,177,305.75
								3%			$ 45,391,423.47	$ 54,469,708.16	
									30%		$ 467,531,661.74	$ 561,037,994.09	
										10%	$ 155,843,887.25	$ 187,012,664.70	
Segment 2	X					23.4	1				$ 37,440,000.00	$ 44,928,000.00	
		X									$ 473,193,434.90	$ 567,832,121.88	
			18		30899						$ 17,797,708.80	$ 21,357,250.56	
			22		37983						$ 26,739,891.20	$ 32,087,869.44	
				16	18400						$ 8,832,000.00	$ 10,598,400.00	$ 975,950,851.59
								3%			$ 16,920,091.05	$ 20,304,109.26	
									30%		$ 174,276,937.78	$ 209,132,325.34	
										10%	$ 58,092,312.59	$ 69,710,775.11	
Segment 3	X					60.4	1				$ 96,640,000.00	$ 115,968,000.00	
		X									$ 1,032,791,983.15	$ 1,239,350,379.78	
			18		31478						$ 18,131,097.60	$ 21,757,317.12	
			22		130164						$ 91,635,385.60	$ 109,962,462.72	
				16	7400						$ 3,552,000.00	$ 4,262,400.00	$ 2,150,455,406.98
								3%			$ 37,282,513.99	$ 44,739,016.79	
									30%		$ 384,009,894.10	$ 460,811,872.92	
										10%	$ 128,003,298.03	$ 153,603,957.64	
Segment 4	X					18.8	1				$ 30,080,000.00	$ 36,096,000.00	
		X									$ 290,454,468.37	$ 348,545,362.04	
			18		57552						$ 33,149,952.00	$ 39,779,942.40	
			22		6201						$ 4,365,433.60	$ 5,238,520.32	
				16	2300						$ 1,104,000.00	$ 1,324,800.00	$ 621,479,828.91
								3%			$ 10,774,615.62	$ 12,929,538.74	
									30%		$ 110,978,540.88	$ 133,174,249.05	
										10%	$ 36,992,846.96	$ 44,391,416.35	
Segment 5	X					50.2	1				$ 80,320,000.00	$ 96,384,000.00	
		X									$ 140,404,650.79	$ 168,485,580.95	
			18		31833						$ 18,335,923.20	$ 22,003,107.84	
			22		0						$ -	$ -	
				16	12000						$ 5,760,000.00	$ 6,912,000.00	$ 423,637,521.23
								3%			$ 7,344,617.22	$ 8,813,540.66	
									30%		$ 75,649,557.36	$ 90,779,468.84	
										10%	$ 25,216,519.12	$ 30,259,822.95	
Additional	Tolling										$ 12,000,000.00	$ 14,400,000.00	$ 14,400,000.00
	Signalization										$ 12,400,000.00	$ 14,880,000.00	$ 14,880,000.00
												Total	$ 6,818,980,914.00

Build Concept 1 Right-of-Way Estimates		
Segment	**RW Requirement**	**Parcels**
1	79.51	341
2	19.25	118
3	51.23	263
4	22.2	29
5	2.43	27
Total	**174.62**	**778**

Appendix M

BUILD CONCEPT 2 COST AND RIGHT OF WAY ESTIMATES

Concept 2 Cost Estimates

	NEW CONSTRUCTION	STRUCTURES	RETAINING WALL	NOISE WALL (16')	LENGTH (FEET)	LENGTH (LANE/MILE)	NUMBER OF LANES	ITS	CONTINGENCY	MOT	CONSTRUCTION COST	TOTAL COST (Design, Construction, and CEI)	TOTAL COST PER SEGMENT
Segment 1	X					22.4					$ 35,915,405.00	$ 43,098,486.00	
		X									$ 349,458,022.96	$ 419,349,628.00	
			X								$ 32,244,856.00	$ 38,693,827.00	
				16	32800						$ 15,744,000.00	$ 18,892,800.00	$ 749,890,096.00
								3%			$ 13,000,868.52	$ 15,601,042.00	
									30%		$ 133,908,945.74	$ 160,690,735.00	
										10%	$ 44,636,315.25	$ 53,563,578.00	
Segment 2	X					40.4	1				$ 64,640,000.00	$ 77,568,000.00	
		X									$ 246,698,015.96	$ 296,037,619.00	
			18		26182						$ 15,080,832.00	$ 18,096,998.00	
			22		35567						$ 25,039,449.60	$ 30,047,340.00	
				16	21000						$ 10,080,000.00	$ 12,096,000.00	$ 625,605,871.00
								3%			$ 10,846,148.93	$ 13,015,379.00	
									30%		$ 111,715,333.95	$ 134,058,401.00	
										10%	$ 37,238,444.65	$ 44,686,134.00	
Segment 3	X					103.3	1				$ 165,280,000.00	$ 198,336,000.00	
		X									$ 366,322,802.10	$ 439,587,363.00	
			18		43753						$ 25,201,497.60	$ 30,241,797.00	
			22		67973						$ 47,852,780.80	$ 57,423,337.00	
				16	7400						$ 3,552,000.00	$ 4,262,400.00	$ 1,052,444,993.00
								3%			$ 18,246,272.42	$ 21,895,527.00	
									30%		$ 187,936,605.87	$ 225,523,927.00	
										10%	$ 62,645,535.29	$ 75,174,642.00	
Segment 4	X					22.8	1				$ 36,480,000.00	$ 43,776,000.00	
		X									$ 272,451,882.11	$ 326,942,259.00	
			18		51167						$ 29,472,019.20	$ 35,366,423.00	
			22		22569						$ 17,377,976.00	$ 20,853,571.00	
				16	2900						$ 1,392,000.00	$ 1,670,400.00	$ 618,053,678.00
								3%			$ 10,715,216.32	$ 12,858,260.00	
									30%		$ 110,366,728.09	$ 132,440,074.00	
										10%	$ 36,788,909.36	$ 44,146,691.00	
Segment 5	X					47.5	1				$ 76,000,000.00	$ 91,200,000.00	
		X									$ 85,080,783.13	$ 102,096,940.00	
			18		31544						$ 18,169,171.20	$ 21,803,005.00	
			22		0						$ -	$ -	
				16	12000						$ 5,760,000.00	$ 6,912,000.00	$ 320,141,224.00
								3%			$ 5,550,298.63	$ 6,660,358.00	
									30%		$ 57,168,075.89	$ 68,601,691.00	
										10%	$ 19,056,025.30	$ 22,867,230.00	
Additional	Tolling										$ 12,000,000.00	$ 14,400,000.00	$ 14,400,000.00
	Signalization										$ 15,600,000.00	$ 18,720,000.00	$ 18,720,000.00
												Total	$ 3,399,255,862.00

Build Concept 2 Right-of-Way Estimates		
Segment	**RW Requirement**	**Parcels**
1	74.46	370
2	29.07	162
3	159.61	618
4	11.76	35
5	6.9	80
Total	**281.8**	**1265**

Appendix N

BUILD CONCEPT 1 & 2 VISSIM ANALYSIS

Memorandum

TO: Kimley Horn and Associates, Inc.

FROM: Shaghayegh Shabanian

DATE: May 22, 2019

RE: Alternative Analysis

This memorandum summarizes the alternative analysis completed for the I-95 corridor in Miami, FL. Initially, two alternatives were proposed and analyzed for the year 2045. The results of the Vissim microsimulations indicated that neither of these alternatives can accommodate the projected future demands without some network configuration modifications. To avoid gridlocking conditions and to keep the simulation operational, several adjustments were made to the alternative networks above the projected future improvements. The main purpose of running these models, despite their failure to handle the demand, was to provide feedback for developing the final third alternative. However, development of Alternative 3 was ultimately not pursued.

Another challenge in this alternative analysis was related to the nature of the corridor configuration, since providing capacity along service roads and managed lanes would encourage some route shifts of traffic within the I-95 corridor. Traffic assignment had to be performed via the dynamic traffic assignment (DTA) feature in Vissim. Given the complexity of the network, numerous unreasonable routes had to be identified and manually closed for this feature to work. While significant effort was put into the this process, this work was not comprehensively performed, since neither Alternatives 1 or 2 could be the final configuration. The iterative process was followed to keep the simulations running without gridlocking and to identify potential locations where configuration changes were necessary for developing Alternative 3.

In general, the managed lanes and service roads have additional lanes in both alternatives. However, some of this additional capacity cannot be properly utilized due to upstream bottlenecks on I-95 or from other roadways and ramps feeding I-95, such as Florida Turnpike.

This document presents the alternative analysis model results and highlights the assumptions and adjustments made in order to run the simulation without network-wide gridlock. Please note that the purpose of simulating Alternatives 1 and 2 was to refine and finalize Alternative 3; as such, the results presented here should not be considered

robust analyses of potential future conditions and do not fully reflect the effect of the added capacity and improved connections.

Assumptions

- Given the likelihood of upcoming improvements in driving-assistance features, it is assumed that drivers will behave more cooperatively and with less disturbances in the near future. Therefore, the Vissim driving behaviors used in the simulations on all links was changed to the default Wiedemann 74 model.

- Look-ahead distance at connectors was increased to reflect future improvements in driving-assistance features.

- Capacity was added to some arterials to accommodate increased demand for the I-95 facilities.

- Signal timing was changed as per changes in the future forecasted demands. Given the lack of capacity at some arterials, it was not possible to optimize signals with applications such as Synchro, because the simulated Vissim volumes would reflect the metered volume and not the actual demand.

- At some intersections, signals and stop signs were removed to allow free traffic flow to the network so that potentially problematic locations downstream could be identified without fully mitigating the arterial and signal capacity issues.

- Conflict points at intersections were removed in the Vissim network to avoid gridlocks and blockades to other movements, again to focus on the I-95 corridor without fully mitigating the arterial and signal capacity issues.

- Reduced speed areas on curves were retained, while those on straight patches were removed to maintain free flow.

- Toll pricing and willingness to pay parameters were adjusted to better utilize the managed lanes under future conditions.

Problematic Spots and Configuration Adjustments

- Along most of the corridor, the managed lane has two extra lanes in Alternatives 1 and 2, but the southbound managed lane from the I-95 mainlanes and from the Turnpike has only one lane, which limits its meters the flow and the downstream volumes.

- I-95/Turnpike merging still creates a major bottleneck that meters the demand.

- in Alternative 1, the southbound off-ramp and northbound on-ramp to Ives Dairy Boulevard. did not have enough capacity and became bottlenecks holding demand from entering or exiting the network. Therefore, their capacity was increased to allow additional traffic flows on I-95.

- Capacities across 79th Street, 95th Street, 103rd Street, and 125th Street were increased to avoid local bottlenecks and demand metering.

- Capacity was added to the ramp from northbound I-95 to westbound I-395.

- Demand from NW 119th Street to southbound I-95 is so high that it blocks demand from southbound I-95 to NW 103rd Street. Different driving behaviors and network configurations were tested. The apparent solution is to separate these weaving movements.

- A lane drop at the ramp from eastbound I-195 to northbound I-95 creates spillback; its capacity should be increased.

- Eastbound I-395 exhibits congestion, and the queue spills back and blocks traffic from southbound I-95.

- Brickell Avenue needs significant signal and geometry improvements.

Results

The following sections present the findings of the final No-Build, Alternative 1, and Alternative 2 Vissim simulations following the above discussed network adjustments and assumptions.

Network-Wide Measures

Table 1 through Table 6 summarize network-wide measures such as average delay per vehicle, average speed, vehicle miles traveled (VMT), vehicle hours traveled (VHT), total delay, number of active and arrived vehicles at the end of the simulation, number of vehicles that could not enter the network due to downstream congestion (latent demand), and total demand. Results are presented for each of 10 different random seed runs, as well as the average, standard deviation, minimum and maximum of the performance metrics.

Table 1. Network-Wide Measures – AM Peak, No-Build Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicle	Arrived Vehicle	Latent Demand	Total demand
1	0-16200	5.95	21.97	1,627,945	74,109	43,659	23,167	417,293	107,073	547,533
2	0-16200	7.29	19.07	1,533,152	80,399	51,709	27,986	397,606	121,941	547,533
3	0-16200	6.08	21.89	1,678,156	76,677	45,320	18,461	429,143	99,929	547,533
4	0-16200	5.65	22.89	1,672,460	73,074	41,852	18,241	425,935	103,357	547,533
5	0-16200	6.26	21.45	1,651,450	76,982	46,122	19,009	423,050	105,474	547,533
6	0-16200	5.70	22.79	1,678,971	73,677	42,331	18,656	426,547	102,330	547,533
7	0-16200	7.23	19.41	1,571,590	80,952	51,563	19,426	408,651	119,456	547,533
8	0-16200	8.26	17.41	1,458,592	83,800	56,456	29,306	380,817	137,410	547,533
9	0-16200	7.46	18.75	1,521,448	81,149	52,675	29,238	394,236	124,059	547,533
10	0-16200	6.43	21.03	1,632,736	77,630	47,107	19,723	419,826	107,984	547,533
AVG		6.63	20.67	1,602,650	77,845	47,879	22,321	412,310	112,901	547,533
STDDEV		0.88	1.88	77,076	3,633	4,943	4,720	16,386	12,176	-
MIN		5.65	17.41	1,458,592	73,074	41,852	18,241	380,817	99,929	547,533
MAX		8.26	22.89	1,678,971	83,800	56,456	29,306	429,143	137,410	547,533

Table 2. Network-Wide Measures – AM Peak, Alternative 1 Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicles	Arrived Vehicles	Latent Demand	Total Demand
1	0-16200	6.36	20.09	1,543,506	76,818	46,431	17,095	420,665	128,961	566,721
2	0-16200	6.35	20.05	1,531,371	76,363	46,210	16,867	419,435	130,419	566,721
3	0-16200	6.31	20.20	1,546,434	76,544	46,103	17,379	420,790	128,552	566,721
4	0-16200	6.46	19.84	1,530,127	77,122	46,988	17,427	418,846	130,448	566,721
5	0-16200	6.35	20.16	1,545,051	76,652	46,253	16,998	420,144	129,579	566,721
6	0-16200	6.43	19.95	1,533,103	76,865	46,664	16,842	418,406	131,473	566,721
7	0-16200	6.39	20.02	1,534,288	76,643	46,429	16,487	419,177	131,057	566,721
8	0-16200	6.46	19.88	1,527,463	76,817	46,743	16,918	417,392	132,411	566,721
9	0-16200	6.56	19.67	1,528,233	77,676	47,578	18,274	417,208	131,239	566,721
10	0-16200	6.47	19.87	1,534,239	77,198	47,022	17,569	418,670	130,482	566,721
AVG	0-16200	6.42	19.97	1,535,382	76,870	46,642	17,186	419,073	130,462	566,721
STDDEV	0-16200	0.07	0.16	7,046	379	456	500	1,235	1,177	-
MIN	0-16200	6.31	19.67	1,527,463	76,363	46,103	16,487	417,208	128,552	562,247
MAX	0-16200	6.56	20.20	1,546,434	77,676	47,578	18,274	420,790	132,411	571,475

Table 3. Network-Wide Measures – AM Peak, Alternative 2 Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicle	Arrived Vehicle	Latent Demand	Total Demand
1	0-16200	6.15	20.76	1,519,065	73,161	44,028	17,133	412,066	145,397	574,596
2	0-16200	6.31	20.44	1,507,533	73,755	44,845	16,939	409,773	147,884	574,596
3	0-16200	6.31	20.43	1,510,242	73,906	44,947	16,717	410,533	147,346	574,596
4	0-16200	6.30	20.54	1,521,947	74,111	44,940	17,501	410,791	146,304	574,596
5	0-16200	6.41	20.26	1,511,427	74,617	45,652	18,225	408,924	147,447	574,596
6	0-16200	6.33	20.46	1,517,241	74,172	45,095	17,227	410,186	147,183	574,596
7	0-16200	6.46	20.14	1,507,420	74,849	45,966	16,588	410,109	147,899	574,596
8	0-16200	6.34	20.34	1,501,401	73,818	45,034	17,032	409,425	148,139	574,596
9	0-16200	6.16	20.72	1,512,613	72,996	43,977	16,765	411,252	146,579	574,596
10	0-16200	6.28	20.45	1,505,821	73,648	44,748	16,842	410,619	147,135	574,596
AVG	0-16200	6.31	20.45	1,511,471	73,903	44,923	17,097	410,368	147,131	574,596
STDDEV	0-16200	0.10	0.19	6,401	576	614	479	904	838	-
MIN	0-16200	6.15	20.14	1,501,401	72,996	43,977	16,588	408,924	145,397	574,596
MAX	0-16200	6.46	20.76	1,521,947	74,849	45,966	18,225	412,066	148,139	574,596

Table 4. Network-Wide Measures – PM Peak, No-Build Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicle	Arrived Vehicle	Latent Demand	Total demand
1	0-16200	5.87	20.59	1,628,461	79,085	47,998	22,479	467,841	115,635	605,955
2	0-16200	6.83	18.46	1,566,031	84,813	54,880	29,308	452,487	124,160	605,955
3	0-16200	6.62	18.9	1,567,652	82,941	52,974	26,655	453,183	126,117	605,955
4	0-16200	6.17	19.89	1,614,291	81,175	50,342	25,565	464,261	116,129	605,955
5	0-16200	6.84	18.4	1,540,304	83,727	54,268	28,957	447,022	129,976	605,955
6	0-16200	6.97	18.18	1,556,520	85,603	55,863	29,381	451,450	125,124	605,955
7	0-16200	6.49	19.18	1,589,841	82,882	52,513	24,334	460,797	120,824	605,955
8	0-16200	6.35	19.47	1,595,892	81,963	51,468	23,562	462,804	119,589	605,955
9	0-16200	7.16	17.84	1,534,401	85,989	56,648	30,072	444,858	131,025	605,955
10	0-16200	6.09	20.06	1,620,120	80,745	49,799	21,998	468,500	115,457	605,955
AVG	0-16200	6.54	19.1	1,581,351	82,892	52,675	26,231	457,320	122,404	605,955
STDDEV	0-16200	0.42	0.9	33,365	2,217	2,799	3,072	8,578	5,772	-
MIN	0-16200	5.87	17.84	1,534,401	79,085	47,998	21,998	444,858	115,457	605,955
MAX	0-16200	7.16	20.59	1,628,461	85,989	56,648	30,072	468,500	131,025	605,955

Table 5. Network-Wide Measures – PM Peak, Alternative 1 Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicles	Arrived Vehicles	Latent Demand	Total Demand
1	0-16200	4.79	24.11	1,825,570	75,719	40,864	17,658	493,927	106,185	617,770
2	0-16200	4.78	24.11	1,820,067	75,486	40,680	16,978	493,695	107,097	617,770
3	0-16200	4.69	24.21	1,802,355	74,452	39,961	16,921	494,398	106,451	617,770
4	0-16200	4.67	24.39	1,818,664	74,560	39,779	17,300	493,581	106,889	617,770
5	0-16200	5.02	23.38	1,810,182	77,416	42,812	18,464	493,103	106,203	617,770
6	0-16200	4.74	23.96	1,787,311	74,591	40,348	17,812	492,605	107,353	617,770
7	0-16200	4.77	24.18	1,828,058	75,614	40,685	16,874	494,864	106,032	617,770
8	0-16200	4.52	24.78	1,820,712	73,468	38,649	17,079	496,139	104,552	617,770
9	0-16200	4.54	24.83	1,829,207	73,682	38,716	16,560	495,197	106,013	617,770
10	0-16200	4.66	24.4	1,822,423	74,687	39,857	16,961	496,444	104,365	617,770
AVG	0-16200	4.72	24.24	1,816,455	74,967	40,235	17,261	494,395	106,114	617,770
STDDEV	0-16200	0.14	0.41	13,079	1,145	1,188	565	1,263	986	-
MIN	0-16200	4.52	23.38	1,787,311	73,468	38,649	16,560	492,605	104,365	617,770
MAX	0-16200	5.02	24.83	1,829,207	77,416	42,812	18,464	496,444	107,353	617,770

Table 6. Network-Wide Measures – PM Peak, Alternative 2 Scenario

Run	TIMEINT	Average Delay (min)	Average Speed	VMT	VHT	Total Delay (hr)	Active Vehicle	Arrived Vehicle	Latent Demand	Total Demand
1	0-16200	4.91	23.07	1,708,831	74,080	41,317	18,196	486,611	122,324	627,131
2	0-16200	4.70	23.51	1,695,947	72,148	39,563	18,947	486,108	122,076	627,131
3	0-16200	4.53	24.17	1,719,404	71,146	38,171	17,027	488,743	121,361	627,131
4	0-16200	4.55	24.16	1,723,832	71,341	38,301	16,116	489,196	121,819	627,131
5	0-16200	4.73	23.42	1,690,274	72,165	39,722	19,045	484,704	123,382	627,131
6	0-16200	4.61	23.93	1,716,057	71,718	38,809	17,696	487,761	121,674	627,131
7	0-16200	4.91	23.17	1,737,445	74,996	41,709	19,196	490,419	117,516	627,131
8	0-16200	4.59	23.97	1,717,091	71,634	38,707	17,716	488,591	120,824	627,131
9	0-16200	4.57	23.9	1,694,142	70,877	38,335	17,863	484,924	124,344	627,131
10	0-16200	4.68	23.58	1,706,259	72,348	39,597	19,481	488,424	119,226	627,131
AVG	0-16200	4.68	23.69	1,710,928	72,245	39,423	18,128	487,548	121,455	627,131
STDDEV	0-16200	0.14	0.4	14,775	1,313	1,241	1,063	1,892	1,951	-
MIN	0-16200	4.53	23.07	1,690,274	70,877	38,171	16,116	484,704	117,516	627,131
MAX	0-16200	4.91	24.17	1,737,445	74,996	41,709	19,481	490,419	124,344	627,131

As shown, the alternatives exhibit slightly lower delays and higher speeds compared to the No-Build scenario. However, as mentioned earlier, due to necessary network modifications, the results for the alternatives do not fully reflect the potential of the improved sections of I-95. The alternatives also exhibit improvements during the PM peak period compared to the No-Build scenario. This is partially attributed to greater time and effort spent on the PM peak period analysis, as it was the more critical period to analyze.

Speed Heat Maps

Figure 1 and Figure 2 illustrate heat maps along the mainlanes and managed lanes of the No-Build, Alternative 1, and Alternative 2 scenarios for the AM and PM periods, respectively. The speed heat maps better reflect the difference between scenarios compared to network-wide measures, because network-wide measures are significantly affected by congestion and blockages on service roads and arterials. As shown in these figures, Alternative 2 network geometry provides better traffic operation.

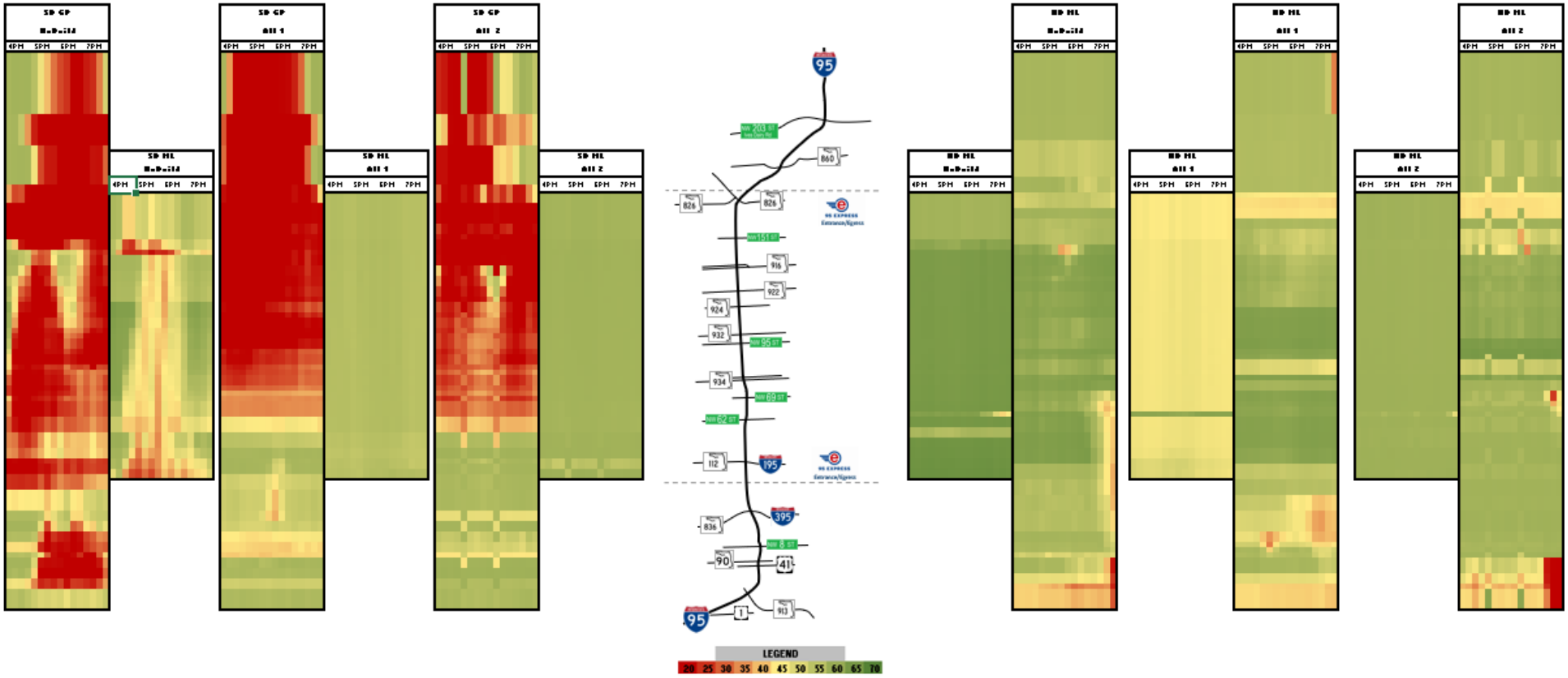


Figure 1. AM Speed Heat Map (No-Build, Alternative 1, and Alternative 2)

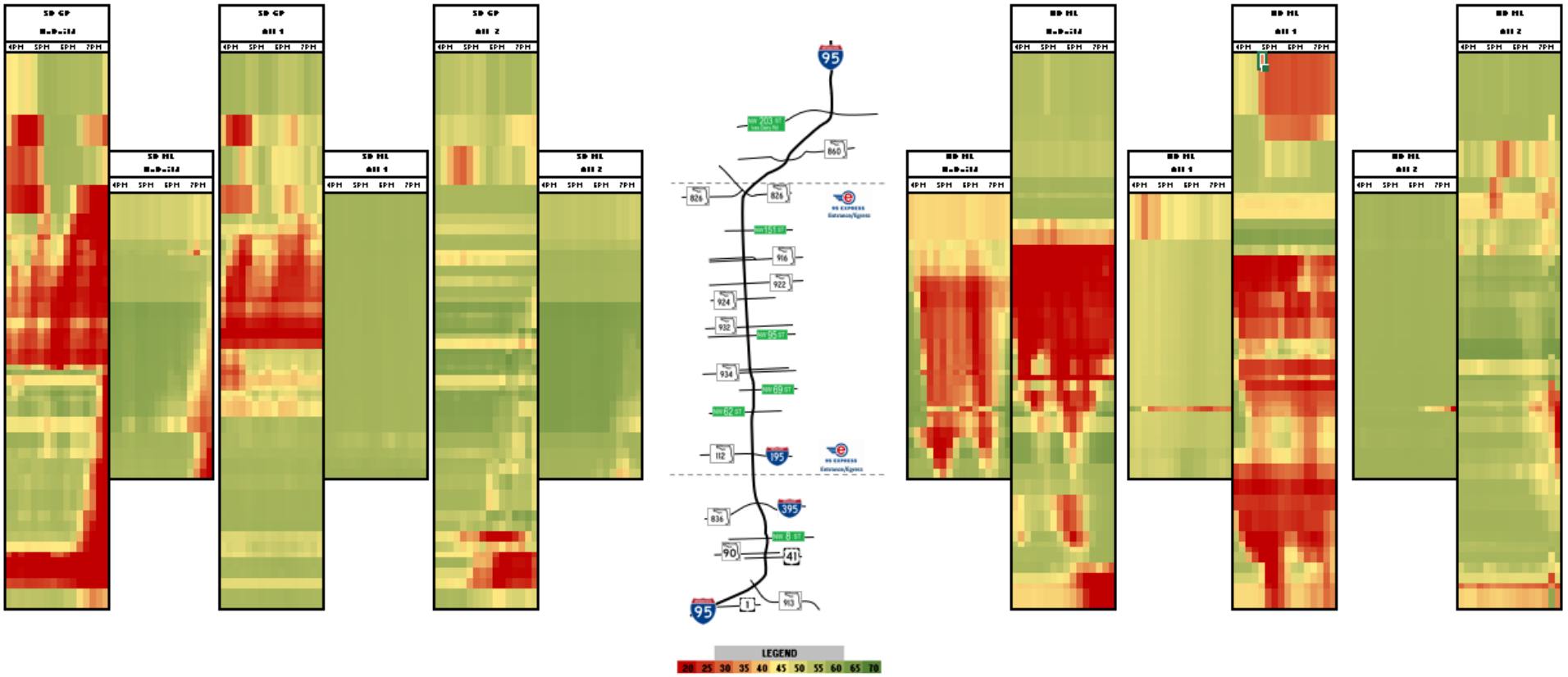


Figure 2. PM Speed Heat Map (No-Build, Alternative 1, and Alternative 2)

Traffic Volumes

Table 7 through Table 10 provide total section-wide traffic volumes using the mainline lanes, the managed lanes, and the service roads along the corridor. It is noted that these volumes represent simulated throughput, and may be less than true demand as upstream bottlenecks may meter downstream throughput.

Table 7. Northbound Total Corridor Volume – AM

Northbound Total Corridor	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2
@ SW 26th Rd	2,067	2,341	2,614	3,244	3,337	2,599	3,429	3,162	2,462	3,387	3,026	2,114
@ SW 22nd Rd	4,119	3,974	4,363	5,467	5,316	4,583	5,576	5,126	4,450	5,250	4,913	3,571
@ SW 1st Avenue	4,126	3,969	4,218	5,456	5,296	4,669	5,563	5,121	4,485	5,218	4,903	3,375
@ SW 15th Road	4,124	3,975	4,282	5,453	5,299	4,630	5,560	5,129	4,564	5,167	4,907	3,379
@ SW 3rd Street	5,011	4,554	5,261	5,571	5,829	5,451	5,598	5,451	5,582	5,120	5,336	4,584
@ NW 2nd Street	4,209	4,507	5,196	4,541	5,762	5,146	4,561	5,402	4,974	4,053	5,266	3,910
@ NW 7th Street	4,211	4,555	5,207	4,542	5,810	5,147	4,568	5,436	4,980	4,034	5,331	3,920
@ NW 10th Street	3,713	4,998	5,622	3,924	6,659	5,609	4,037	6,223	5,373	3,625	6,099	4,340
@ NW 14th Street	2,733	4,561	5,210	2,992	5,787	5,140	3,105	5,433	4,989	2,658	5,334	3,928
@ NW 17th Street	3,842	4,744	6,364	4,112	6,198	6,820	4,228	6,211	6,383	3,616	5,964	5,821
@ NW 20th Street	6,284	6,321	5,971	6,794	7,608	6,484	6,183	6,883	6,045	5,578	6,237	5,417
@ NW 26th Street	6,550	6,326	6,368	6,982	7,530	6,811	6,391	6,843	6,395	5,689	6,267	5,828
@ NW 32nd Street	6,555	7,708	6,362	6,973	8,647	6,817	6,402	7,767	6,398	5,604	7,212	5,830
@ US 112	5,100	3,770	3,490	5,311	4,561	3,772	4,837	4,275	3,545	4,086	3,812	3,169
@ NW 32nd Street	6,428	6,370	4,725	6,750	7,178	4,907	5,989	6,257	4,091	5,010	5,884	4,013
@ NW 53rd Street	7,321	6,557	3,984	7,860	7,464	4,334	6,772	6,509	4,273	5,694	6,136	3,648
@ NW 62nd Street	6,647	5,867	6,178	7,189	6,718	6,605	6,218	6,051	6,380	5,214	5,618	5,814
@ NW 67th Street	7,200	5,866	6,176	7,963	6,713	6,601	6,892	6,055	6,383	5,698	5,621	5,805
@ NW 69th Street	7,199	5,869	6,489	7,965	6,710	7,053	6,885	6,060	6,828	5,667	5,623	6,112
@ NW 73rd Street	7,513	5,866	6,493	8,317	6,708	7,048	7,156	6,059	6,836	5,719	5,630	6,104
@ NW 77th Street	6,853	5,059	5,330	7,700	6,040	5,945	6,579	5,356	5,629	5,310	4,960	4,793
@ NW 85th Street	7,520	6,443	6,657	8,400	7,493	7,355	7,271	6,902	7,057	5,846	6,965	6,040
@ NW 92nd Street	7,085	5,729	6,019	7,915	6,701	6,514	6,782	5,929	6,353	5,481	5,828	5,310
@ NW 96th Street	7,631	6,210	6,390	8,590	7,335	6,963	7,482	6,662	6,786	5,812	6,798	5,694
@ NW 100th Terrace	7,621	4,980	5,127	8,592	5,934	5,685	7,485	5,410	5,616	5,810	5,553	4,671
@ NW 110th Street	7,650	6,077	6,401	8,714	7,199	7,030	7,914	6,538	6,866	6,083	6,370	5,766
@ NW 116th Street	7,657	6,073	6,393	8,708	7,187	7,031	7,922	6,551	6,865	6,092	6,365	5,778
@ NW 122nd Street	6,941	5,482	6,145	7,754	6,259	6,440	7,131	6,060	6,368	5,544	5,855	5,563
@ NW 127th Street	6,941	5,487	6,543	7,747	6,243	6,921	7,140	6,066	7,024	5,551	5,862	5,811
@ NW 129th Street	7,704	5,487	6,543	8,750	6,239	6,915	8,085	6,071	7,029	5,963	5,860	5,813
@ NW 134th Street	7,703	5,493	6,545	8,747	6,234	6,899	8,089	6,074	7,044	5,976	5,860	5,822
@ NW 137th Street	7,604	5,969	7,902	8,739	6,479	8,108	8,225	6,506	8,303	6,115	6,423	7,248
@ NW 146th Street	7,601	5,957	7,905	8,663	6,457	8,104	8,292	6,513	8,313	6,140	6,419	7,267
@ NW 157th Street	7,407	4,134	7,303	8,382	4,512	7,733	8,074	4,436	7,740	5,999	4,604	6,972
@ NW 165th Street	2,702	2,918	4,630	3,136	3,313	5,080	3,196	3,200	4,824	2,305	3,344	3,898
@ NW 169th Street	4,559	4,448	5,431	4,440	4,267	5,643	4,484	4,474	5,460	3,591	4,883	4,428
@ NW 171st Terrace	4,869	4,871	5,600	4,936	4,917	5,821	5,003	5,107	5,647	4,082	5,490	4,566
@ NE 183rd Street	4,893	3,326	5,567	4,853	3,249	5,663	4,991	3,382	5,463	4,118	3,604	4,322
@ Ives Dairy Road	5,316	4,760	5,229	5,500	5,005	5,698	5,785	5,246	5,439	4,730	5,306	4,525
@ NW 214th	6,945	6,154	6,259	6,987	5,981	6,366	7,310	6,963	6,500	6,342	7,936	6,433

Table 8. Southbound Total Corridor Volume – AM

Southbound Total Corridor	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2
@ NW 214th	4,341	5,032	6,608	3,929	4,128	6,549	2,806	4,958	6,358	3,487	4,661	5,022
@ Ives Dairy Road	3,296	4,149	5,551	2,481	3,404	5,210	1,871	4,095	5,126	2,687	4,140	4,204
@ NE 183rd Street	3,960	5,003	6,540	3,080	4,726	6,602	2,567	5,626	6,819	3,047	5,632	5,877
@ NW 171st Terrace	3,606	4,749	5,918	2,986	4,757	6,288	2,611	5,713	6,355	3,019	5,938	5,547
@ NW 164th Street	2,321	3,275	4,179	1,505	3,223	4,155	1,814	4,042	4,342	1,746	4,369	3,837
@ NW 161st Street	4,126	4,287	4,934	3,460	4,078	4,932	3,409	5,034	5,122	3,569	5,464	4,567
@ Biscayne River Dr	7,652	5,918	6,914	6,076	5,696	6,687	6,653	6,972	7,025	5,741	7,786	6,092
@ NW 146th Street	8,570	6,244	7,274	7,026	6,124	7,183	7,714	7,478	7,532	6,487	8,346	6,453
@ NW 133rd Street	9,437	6,233	6,698	8,051	6,349	7,165	8,214	7,296	7,714	6,775	8,299	6,726
@ NW 124th Street	8,823	6,871	7,079	8,005	6,573	7,872	8,018	7,768	8,347	6,743	8,756	7,030
@ NW 121st Street	8,764	6,869	7,012	8,011	6,573	7,897	8,020	7,774	8,299	6,698	8,768	7,043
@ NW 112th Street	8,761	7,668	7,431	8,447	7,745	8,678	8,298	8,552	8,281	6,868	9,489	7,269
@ NW 105th Street	8,593	7,602	7,436	8,468	7,745	8,683	8,348	8,529	8,194	6,774	9,496	7,358
@ NW 100th Terrace	8,770	6,182	7,174	8,758	6,317	7,966	8,627	6,925	7,647	6,772	7,770	6,993
@ NW 98th Street	9,005	7,699	7,469	9,147	7,867	8,324	8,952	8,498	7,976	6,990	9,446	7,352
@ NW 93rd Street	8,700	8,065	8,313	8,964	8,239	8,992	8,965	9,076	8,864	6,782	10,081	8,271
@ NW 90th Street	8,601	8,057	8,322	8,987	8,242	8,994	8,948	9,069	8,834	6,775	10,085	8,294
@ NW 77th Street	8,095	7,648	7,952	8,635	7,916	8,455	8,602	8,535	8,110	6,478	9,324	7,900
@ NW 75th Street	8,360	8,960	9,389	9,052	9,260	9,925	8,954	9,885	9,535	6,749	10,695	9,355
@ NW 67th Street	8,222	8,448	8,118	9,074	8,611	8,777	9,025	9,267	8,371	6,778	9,799	8,204
@ NW 62nd Street	7,707	8,454	8,117	8,425	8,601	8,777	8,526	9,272	8,364	6,439	9,798	8,211
@ NW 50th Street	8,503	8,937	6,791	9,543	9,265	7,615	9,728	9,969	7,250	7,092	10,527	6,983
@ US 112	6,427	5,180	5,969	6,908	5,507	6,850	7,417	6,297	6,448	5,686	6,894	6,036
@ NW 26th Street	8,362	8,362	5,588	8,694	8,598	6,659	9,022	8,521	6,161	7,435	8,852	5,741
@ NW 20th Street	8,350	8,361	6,949	8,695	8,580	8,060	9,000	8,546	7,277	7,418	8,839	6,897
@ NW 14th Street	3,673	5,528	5,467	4,245	6,071	6,644	4,096	6,446	6,258	3,680	5,950	5,150
@ NW 10th Street	5,611	6,261	5,311	6,512	6,902	6,365	6,542	7,103	6,023	6,115	6,482	4,994
@ SW 3rd Street	3,276	4,883	2,586	3,624	5,143	3,318	3,410	5,334	3,241	3,454	4,904	2,679
@ SW 10th Street	3,270	3,800	1,462	3,508	3,927	1,904	3,409	3,808	1,879	3,539	3,125	1,518
@ SW 15th Road	3,561	4,019	1,235	3,958	4,308	1,631	3,883	4,294	1,604	3,968	3,457	1,279
@ SW 1st Avenue	3,557	4,018	1,463	3,884	4,303	1,901	3,886	4,299	1,881	4,016	3,457	1,514
@ SW 22nd Rd	1,516	1,920	948	1,720	2,049	1,226	1,791	1,893	1,263	2,026	1,741	1,042

Table 9. Northbound Total Corridor Volume – PM

Northbound Total Corridor	4-5 PM			5-6 PM			6-7 PM			7-8 PM		
	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2
@ SW 26th Rd	2,360	2,275	2,786	2,282	2,072	2,879	2,411	2,747	3,129	1,167	2,250	3,081
@ SW 22nd Rd	4,528	4,690	4,202	4,455	3,963	4,348	3,842	5,041	4,553	1,335	4,067	4,491
@ SW 1st Avenue	4,530	4,673	4,955	4,452	3,939	5,050	3,767	5,044	5,131	1,266	4,068	4,886
@ SW 15th Road	4,540	4,670	4,764	4,441	3,928	5,020	3,699	5,053	5,135	1,211	4,070	4,980
@ SW 3rd Street	5,491	5,397	6,161	5,418	4,524	6,173	4,598	5,405	6,134	1,577	4,595	5,499
@ NW 2nd Street	4,668	5,299	5,931	4,566	4,563	5,755	3,842	5,379	5,769	1,267	4,592	5,338
@ NW 7th Street	4,686	5,220	5,938	4,563	4,631	5,765	3,858	5,349	5,774	1,288	4,623	5,348
@ NW 10th Street	4,466	6,153	6,367	4,301	5,784	6,334	3,547	6,459	6,458	1,193	5,674	5,896
@ NW 14th Street	3,868	5,080	5,943	3,771	4,703	5,764	3,296	5,300	5,777	1,144	4,674	5,341
@ NW 17th Street	4,985	5,584	8,844	4,936	5,563	9,312	4,367	6,020	9,547	2,268	5,446	8,571
@ NW 20th Street	7,177	7,571	8,313	6,998	7,660	8,729	6,794	8,026	9,033	2,967	7,284	8,120
@ NW 26th Street	7,438	7,557	8,840	7,223	7,694	9,299	7,078	7,980	9,522	3,083	7,323	8,495
@ NW 32nd Street	7,443	8,705	8,839	7,218	8,868	9,269	7,075	9,119	9,470	3,131	8,440	8,448
@ US 112	5,745	6,828	5,539	5,389	6,502	5,629	5,242	6,371	5,890	2,486	6,247	5,449
@ NW 32nd Street	7,187	9,249	5,483	6,669	8,538	5,703	6,372	8,276	5,823	3,771	7,868	5,482
@ NW 53rd Street	8,131	9,835	6,467	7,647	9,083	6,516	7,302	8,648	6,440	4,972	8,205	6,166
@ NW 62nd Street	7,045	8,842	8,951	6,706	8,157	8,967	6,382	7,555	8,731	4,511	7,228	7,818
@ NW 67th Street	7,349	8,821	8,953	7,061	8,162	8,962	6,774	7,529	8,699	4,983	7,233	7,775
@ NW 69th Street	7,260	8,797	9,242	7,085	8,171	9,189	6,763	7,512	8,951	5,053	7,235	8,039
@ NW 73rd Street	7,346	8,716	9,245	7,258	8,198	9,183	6,894	7,494	8,917	5,310	7,229	7,971
@ NW 77th Street	6,728	7,881	7,724	6,606	7,411	7,393	6,435	6,730	7,313	5,095	6,579	6,833
@ NW 85th Street	7,449	9,552	9,438	7,053	9,199	8,963	7,007	8,342	8,937	6,427	8,229	8,128
@ NW 92nd Street	6,829	8,958	8,414	6,448	8,791	8,240	6,471	8,066	8,160	6,223	7,956	7,351
@ NW 96th Street	7,403	9,374	8,758	7,013	9,021	8,314	7,032	8,273	8,405	6,912	8,146	7,597
@ NW 100th Terrace	7,285	7,890	7,313	6,994	7,526	6,939	7,052	6,813	7,034	6,954	6,666	6,469
@ NW 110th Street	7,223	9,600	8,774	7,105	9,697	8,576	7,161	9,114	8,445	7,311	8,789	7,700
@ NW 116th Street	7,127	9,525	8,780	7,103	9,702	8,562	7,178	9,107	8,437	7,351	8,797	7,728
@ NW 122nd Street	6,604	8,375	8,423	6,680	8,465	7,981	6,752	7,505	7,863	6,992	7,718	7,325
@ NW 127th Street	6,575	8,349	8,996	6,678	8,460	8,561	6,769	7,555	8,366	6,981	7,699	8,140
@ NW 129th Street	7,345	8,342	8,990	7,325	8,460	8,563	7,353	7,569	8,364	7,644	7,700	8,141
@ NW 134th Street	7,347	8,335	8,987	7,315	8,459	8,554	7,345	7,618	8,368	7,650	7,691	8,165
@ NW 137th Street	7,781	8,202	9,023	7,593	7,721	8,776	7,716	7,420	8,219	7,994	7,296	8,889
@ NW 146th Street	7,756	8,198	9,061	7,597	7,715	8,770	7,719	7,462	8,199	7,993	7,296	8,886
@ NW 157th Street	7,577	5,708	8,481	7,449	5,548	8,022	7,526	5,518	7,425	7,810	5,223	8,153
@ NW 165th Street	2,521	3,811	5,548	2,235	3,783	5,372	2,836	4,043	4,866	2,888	3,693	5,405
@ NW 169th Street	3,999	6,107	6,901	3,881	6,301	7,787	4,270	6,280	6,652	4,076	5,608	7,157
@ NW 171st Terrace	4,234	6,868	7,091	4,349	7,475	8,147	4,539	7,162	6,930	4,352	6,276	7,358
@ NE 183rd Street	4,245	4,438	7,038	4,330	4,893	7,643	4,544	4,634	7,104	4,355	4,095	7,178
@ Ives Dairy Road	4,738	6,331	6,737	5,223	6,660	6,911	5,184	6,453	6,744	5,199	6,407	6,941
@ NW 214th	6,412	8,359	8,254	6,928	8,456	8,338	6,679	8,422	8,292	6,874	8,331	8,405

Table 10. Southbound Total Corridor Volume – PM

Southbound Total Corridor	4-5 PM			5-6 PM			6-7 PM			7-8 PM		
	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2	NB	Alt1	Alt2
@ NW 214th	6,224	7,101	6,293	3,626	6,970	4,763	5,395	7,201	4,366	5,180	6,408	3,862
@ Ives Dairy Road	3,802	5,063	4,394	2,190	5,148	3,421	3,405	5,357	3,181	3,231	5,028	2,949
@ NE 183rd Street	4,364	6,365	5,794	3,160	6,615	4,769	3,416	6,487	4,487	3,447	6,527	4,226
@ NW 171st Terrace	4,170	6,305	5,767	3,517	6,622	4,721	3,162	6,570	4,374	3,352	6,502	4,181
@ NW 164th Street	3,514	4,499	4,360	3,097	4,718	4,010	2,840	5,292	4,098	2,608	5,318	4,006
@ NW 161st Street	4,737	5,526	5,225	4,257	5,627	5,003	4,248	6,169	4,916	4,071	6,352	4,811
@ Biscayne River Dr	8,092	8,934	7,858	7,572	8,829	8,298	7,458	9,224	7,543	7,314	9,635	7,894
@ NW 146th Street	8,352	9,185	8,211	7,776	9,357	8,730	7,557	9,618	7,979	7,484	10,170	8,331
@ NW 133rd Street	7,758	8,213	8,469	7,223	8,570	8,621	6,933	8,387	7,986	6,905	9,152	8,348
@ NW 124th Street	7,800	8,882	8,496	7,068	9,309	8,761	6,887	9,294	8,199	6,885	9,996	8,568
@ NW 121st Street	8,467	8,827	8,446	7,814	9,313	8,727	7,586	9,299	8,207	7,524	10,004	8,561
@ NW 112th Street	8,856	9,053	8,401	8,307	9,849	8,955	8,132	10,076	8,667	7,927	10,341	8,614
@ NW 105th Street	8,304	9,017	8,418	7,848	9,841	8,903	7,853	10,096	8,726	7,420	10,353	8,566
@ NW 100th Terrace	8,276	7,769	7,516	7,837	8,609	7,933	7,884	8,996	7,761	7,341	9,153	7,627
@ NW 98th Street	8,845	9,396	8,361	8,373	10,347	8,893	8,309	10,772	8,715	7,916	10,854	8,460
@ NW 93rd Street	8,249	9,607	8,687	7,649	10,230	9,052	7,664	10,656	8,880	7,303	10,794	8,696
@ NW 90th Street	8,749	9,614	8,690	8,107	10,235	9,039	8,251	10,661	8,883	7,696	10,788	8,693
@ NW 77th Street	7,826	8,545	7,765	7,187	9,019	8,015	7,466	9,470	7,992	6,585	9,523	7,679
@ NW 75th Street	8,878	9,928	9,035	8,137	10,377	9,356	8,254	10,744	9,233	7,221	10,787	8,733
@ NW 67th Street	8,637	8,953	7,708	7,975	9,209	7,782	8,052	9,604	7,697	6,641	9,505	7,568
@ NW 62nd Street	7,849	8,937	7,710	7,221	9,233	7,773	7,191	9,588	7,696	5,823	9,515	7,585
@ NW 50th Street	8,472	9,473	6,257	8,089	9,854	6,326	7,898	10,182	6,199	5,780	10,074	6,268
@ US 112	6,180	5,211	4,868	5,968	5,594	4,864	5,953	5,799	4,713	3,796	5,585	4,862
@ NW 26th Street	7,434	6,966	4,740	7,251	7,330	4,564	7,125	7,655	4,432	4,115	6,828	4,361
@ NW 20th Street	7,427	6,959	5,946	7,261	7,335	5,948	7,074	7,659	5,741	3,853	6,831	5,592
@ NW 14th Street	2,941	4,155	4,398	2,787	4,593	4,425	2,795	4,748	4,385	1,352	4,288	4,498
@ NW 10th Street	4,583	4,791	4,559	4,560	4,979	4,735	4,315	5,107	4,712	1,731	4,809	4,829
@ SW 3rd Street	3,369	4,386	2,873	3,135	4,450	3,106	2,680	4,252	3,031	668	4,115	3,121
@ SW 10th Street	3,328	3,234	1,961	3,152	3,235	2,049	2,591	3,149	1,977	605	3,222	2,154
@ SW 15th Road	3,839	3,690	1,774	3,797	3,727	1,832	3,106	3,497	1,811	682	3,737	1,945
@ SW 1st Avenue	3,832	3,689	1,958	3,795	3,730	2,050	3,030	3,500	1,978	630	3,735	2,150
@ SW 22nd Rd	1,601	1,641	1,358	1,608	1,668	1,405	1,134	1,396	1,248	216	1,732	1,521

Travel Time

The following tables compare the travel times of mainlanes and managed lanes along the corridor. The values in these tables are consistent with the speed heat maps. Figure 3 shows the limits of sections A, B, and C along the corridor. Travel times in the table are shown segment by segment (in seconds) as well as the total corridor travel times (in minutes).

Figure 3- Extents of the Three Travel Time "Corridors" Utilized for this Study Area

Table 11 – Northbound Travel Time – AM

	Starting Point	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
		NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
Corridor A	Start US-1												
	SW 8 St Ramp	107.8	103.7	117.2	111.1	105.8	107.3	121.3	106.7	110.1	146.1	118.1	308.9
	SR-970 Ramp	38.4	39.4	41.3	40.0	40.5	41.3	45.7	40.1	42.0	60.5	56.8	67.8
	NW 2 St Ramp	45.0	43.4	43.4	45.4	54.7	43.6	45.1	44.8	43.5	51.6	71.2	43.1
	I-395 EB Ramp	21.5	25.1	20.6	21.5	30.1	20.6	21.6	28.1	20.7	32.6	35.9	20.5
	SR-836 WB Ramp	5.1	6.1	5.1	5.2	6.4	5.1	5.2	7.3	5.2	10.1	10.4	5.1
	Start express lanes	78.9	74.9	67.1	80.1	75.4	67.1	80.1	79.6	67.0	119.7	94.9	67.0
	I-195 EB/SR-112 WB	19.3	26.8	25.1	19.5	27.0	25.1	19.4	26.9	25.0	42.9	26.8	25.0
	End - NW 62 St	90.1	92.5	92.1	90.4	93.2	92.1	90.3	92.2	92.0	189.5	92.2	95.1
Total (minute)		6.8	6.9	6.9	6.9	7.2	6.7	7.1	7.1	6.8	10.9	8.4	10.5
Corridor B	Start NW 62 St On-ramp												
	NW 79 St Ramp	44.6	45.5	49.0	45.0	46.3	49.0	48.6	45.9	49.0	115.4	45.3	73.4
	NW 95 St Ramp	58.3	62.8	67.6	59.2	64.9	68.0	59.4	64.0	69.8	71.0	67.8	90.6
	NW 103 St Ramp	30.4	30.6	29.5	30.8	31.1	29.6	30.3	30.7	29.5	34.2	30.8	29.4
	NW 119 St Ramp	57.2	56.3	55.7	58.3	56.7	55.9	57.8	56.4	56.0	56.5	56.5	55.3
	NW 125 St Ramp	22.5	22.0	23.3	22.9	22.1	23.5	22.5	22.0	23.4	22.2	22.0	23.1
	NW 135 St Ramp	41.8	44.4	44.0	42.4	47.4	44.5	41.8	46.9	44.1	41.0	44.5	43.5
	End NW 151 St Ramp	56.2	64.2	65.5	63.5	68.0	68.3	69.9	71.2	75.6	55.5	68.9	62.5
Total (minute)		5.2	5.4	5.6	5.4	5.6	5.6	5.5	5.6	5.8	6.6	5.6	6.3
Corridor C	NW 151 St Ramp												
	SR-826/HEFT Ramps	39.5	31.4	36.4	44.2	32.8	39.9	43.0	34.2	37.9	38.7	33.5	30.3
	NW 2 Ave Ramp	10.1	19.2	20.2	10.3	19.3	20.2	10.5	19.3	20.2	10.0	19.3	20.2
	US 441 Ramp	31.7	40.0	34.0	32.0	40.2	34.0	32.1	40.1	33.9	31.6	40.1	33.6
	NE 183 St Ramp NE	105.0	115.0	120.1	108.8	120.0	126.0	140.7	120.0	122.4	130.0	120.0	124.2
	203 St Ramp	101.6	105.6	102.1	101.5	105.8	102.4	101.9	106.5	102.0	101.7	105.9	101.1
	Broward Co. Line	142.3	103.2	103.2	142.1	103.2	103.1	142.7	104.8	103.0	142.0	122.0	102.3
Total (minute)		7.2	6.9	6.9	7.3	7.0	7.1	7.8	7.1	7.0	7.6	7.3	6.9

Express lanes

Starting Point	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
NB Start												
Exit to SR-826/HEFT	456.1	512.7	506.7	458.5	515.0	501.8	455.7	515.3	497.5	454.6	517.6	499.3
NB End	123.8	483.7	379.1	124.1	485.2	379.2	124.5	486.5	381.3	124.1	484.4	380.7
Total (minute)	9.7	16.6	14.8	9.7	16.7	14.7	9.7	16.7	14.6	9.6	16.7	14.7

Table 12 – Southbound Travel Time- AM

	Starting Point	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
		NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
Corridor A	Start on NW 62 Ramp												
	I-195 EB/SR-112 WB	322.4	109.5	116.6	247.2	111.1	110.7	204.1	112.9	113.9	219.2	112.9	117.1
	SR-836 WB Ramp	417.9	113.1	108.5	355.9	120.6	110.2	268.2	141.5	109.8	263.5	113.1	107.8
	I-395 EB Ramp	12.3	14.5	15.7	17.2	15.2	15.7	18.0	15.4	15.7	16.3	14.3	15.8
	NW 8 St Ramp	13.4	8.9	7.3	20.0	9.0	7.4	21.3	8.8	7.3	18.8	8.8	7.3
	SW 7 St Ramp	57.4	68.8	59.8	135.7	70.7	62.6	152.2	70.5	60.9	123.2	69.1	59.2
	SR-970 Ramp	5.9	10.5	14.5	9.9	10.8	14.8	17.2	11.2	14.3	10.9	10.9	14.2
	Rickenbacker Ramp	98.2	108.6	95.3	237.8	109.6	95.7	350.7	108.1	95.0	297.0	107.0	95.4
	End US-1 WB	40.8	43.4	46.5	41.2	43.6	47.3	41.3	43.4	47.2	41.5	43.4	46.7
	Total (minute)	16.1	8.0	7.7	17.7	8.2	7.7	17.9	8.5	7.7	16.5	8.0	7.7
Corridor B	Start 151 St Ramp												
	NW 135 St Ramp	38.3	298.7	209.5	155.9	292.4	211.3	57.4	210.3	183.2	231.8	164.0	281.4
	NW 125 St Ramp	80.9	338.7	223.3	266.0	327.4	198.5	81.5	247.8	91.1	335.9	193.9	306.1
	NW 103 St Ramp	243.2	522.2	404.4	455.4	493.8	345.1	222.0	426.5	291.9	495.4	340.7	510.1
	NW 95 St Ramp	114.5	192.1	123.4	145.6	186.3	89.3	106.1	168.7	99.4	209.9	140.1	133.4
	NW 79-81 St Ramp	240.7	224.2	218.6	265.1	206.3	159.9	211.6	180.6	176.9	350.6	143.0	227.2
	NW 69 St Ramp	271.3	143.0	147.8	247.5	126.5	116.1	208.4	118.4	128.2	212.3	102.6	149.6
	NW 62 St Ramp	58.6	29.1	43.2	45.6	28.7	32.4	38.6	28.2	37.7	40.3	27.1	41.8
	Total (minute)	17.5	29.1	22.8	26.4	27.7	19.2	15.4	23.0	16.8	31.3	18.5	27.5
Corridor C	Co. Line												
	203 St Ramp	25.3	212.7	127.2	137.1	447.7	140.4	405.9	378.0	75.3	218.1	112.7	32.3
	NW 183 St Ramp	141.6	701.8	545.5	708.6	1191.2	714.3	1249.8	1045.8	518.7	757.0	422.9	300.2
	SR-826/HEFT Ramp	209.4	626.8	323.0	829.6	799.5	338.4	1162.2	616.6	273.3	756.6	365.1	254.2
	NW 151 St Ramp	638.9	681.1	465.0	1208.1	722.0	463.3	1343.1	520.0	441.3	786.3	439.4	568.4
	Total (minute)	16.9	37.0	24.3	48.1	52.7	27.6	69.4	42.7	21.8	42.0	22.3	19.3

Express Lanes

Starting Point	6-7 AM			7-8 AM			8-9 AM			9-10 AM		
	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
SB Start												
Exit to SR-112 West	255.0	367.2	383.4	255.2	369.3	384.5	257.0	373.1	388.3	266.3	408.5	389.2
SB End	637.6	523.8	501.1	1011.9	522.5	500.1	917.3	522.8	500.9	637.4	526.5	502.7
Total (Minute)	14.9	14.8	14.7	21.1	14.9	14.7	19.6	14.9	14.8	15.1	15.6	14.9

Table 13 - Northbound Travel Time – PM

Mainlane													
Starting Point		4-5 PM			5-6 PM			6-7 PM			7-8 PM		
		NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
Corridor A	Start US-1												
	SW 8 St Ramp	107.5	106.0	111.4	110.4	317.9	112.9	202.4	142.4	118.3	549.6	240.0	130.0
	SR-970 Ramp	39.8	70.2	41.5	39.6	273.5	41.7	48.7	91.8	41.4	38.5	203.6	41.7
	NW 2 St Ramp	46.0	109.2	45.0	44.8	244.8	44.8	88.7	116.7	44.7	43.2	200.7	44.3
	I-395 EB Ramp	36.7	66.0	20.9	26.3	98.7	20.9	88.9	64.7	20.8	23.6	105.8	23.0
	SR-836 WB Ramp	10.5	17.6	5.2	8.1	23.4	5.2	19.4	16.2	5.2	5.6	27.6	6.7
	Start express lanes	112.7	475.8	67.7	121.8	594.3	67.8	174.3	467.5	68.5	79.9	652.3	111.1
	I-195 EB/SR-112 WB	20.3	124.2	25.3	20.9	125.1	25.3	22.7	116.6	26.9	19.0	142.9	55.6
	End - NW 62 St	99.0	224.5	96.3	125.9	248.9	98.2	181.0	250.3	118.5	98.1	300.4	239.0
Total (minute)		7.9	19.9	6.9	8.3	32.1	6.9	13.8	21.1	7.4	14.3	31.2	10.9
Corridor B	Start NW 62 St On-ramp												
	NW 79 St Ramp	87.3	80.9	49.4	125.4	112.4	50.4	203.9	134.9	63.7	82.2	157.8	143.5
	NW 95 St Ramp	163.6	158.4	75.0	188.3	195.3	71.2	253.8	233.8	84.3	159.9	258.4	120.6
	NW 103 St Ramp	124.3	57.9	30.2	131.6	50.6	30.0	154.6	65.7	36.2	136.8	73.0	34.1
	NW 119 St Ramp	260.7	166.9	56.6	278.3	143.7	56.7	292.3	179.4	75.5	270.4	172.2	68.5
	NW 125 St Ramp	101.0	79.5	23.6	103.0	67.8	23.2	95.7	95.0	35.3	91.0	81.3	29.0
	NW 135 St Ramp	218.0	161.0	46.0	217.5	135.8	44.7	203.7	153.8	64.0	190.8	132.8	54.5
	End NW 151 St Ramp	289.6	204.2	70.2	315.5	196.6	69.1	286.2	200.9	65.2	273.2	177.4	88.7
Total (minute)		20.7	15.1	5.8	22.7	15.0	5.8	24.8	17.7	7.1	20.1	17.5	9.0
Corridor C	NW 151 St Ramp												
	SR-826/HEFT Ramps	88.1	28.5	34.1	104.6	28.8	32.8	84.2	29.2	27.4	85.7	29.0	40.6
	NW 2 Ave Ramp	10.5	19.1	20.2	10.7	19.2	24.0	10.4	19.1	19.7	10.5	19.1	31.5
	US 441 Ramp	31.2	40.0	34.0	31.3	40.1	44.1	31.3	40.0	33.8	31.3	40.0	53.7
	NE 183 St Ramp NE	101.3	115.0	134.6	102.6	120.0	260.4	101.7	120.0	172.0	101.6	120.0	232.7
	203 St Ramp	102.0	111.8	117.3	102.5	154.9	141.4	102.3	180.7	169.5	102.4	127.3	161.1
	Broward Co. Line	108.0	130.3	108.3	109.0	245.4	109.3	110.0	281.5	109.3	108.0	241.1	111.5
Total (minute)		7.4	7.4	7.5	7.7	10.1	10.2	7.3	11.2	8.9	7.3	9.6	10.5

Express Lanes												
Starting Point	4-5 PM			5-6 PM			6-7 PM			7-8 PM		
	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
NB Start												
Exit to SR-826/HEFT	736.1	539.3	495.3	1567.7	529.0	499.9	1333.4	518.3	503.1	1325.0	519.5	500.0
NB End	171.7	486.4	455.8	166.6	542.6	559.4	167.6	604.2	1018.3	166.6	561.6	518.9
Total (minute)	15.1	17.1	15.9	28.9	17.9	17.7	25.0	18.7	25.4	24.9	18.0	17.0

Table 14 – Southbound Travel Time- PM

	Starting Point	4-5 PM			5-6 PM			6-7 PM			7-8 PM		
		NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
Corridor A	Start on NW 62 Ramp												
	I-195 EB/SR-112 WB	83.0	94.9	126.1	102.3	92.5	129.2	99.5	93.0	131.6	178.0	88.1	132.0
	SR-836 WB Ramp	112.3	107.8	107.5	109.9	108.2	107.6	113.0	108.7	107.5	470.7	108.0	107.6
	I-395 EB Ramp	14.1	12.7	15.9	13.3	12.7	15.9	17.1	12.7	15.9	143.2	12.7	15.9
	NW 8 St Ramp	16.9	7.9	7.3	16.4	7.9	7.3	20.5	7.9	7.3	138.5	7.9	7.3
	SW 7 St Ramp	57.5	59.6	59.5	57.5	58.2	60.1	75.0	57.9	60.4	705.5	58.9	61.0
	SR-970 Ramp	6.5	9.7	15.1	6.3	9.1	15.4	19.9	9.1	15.5	268.4	9.7	16.0
	Rickenbacker Ramp	291.2	108.0	96.6	317.0	106.3	97.3	363.0	104.8	97.2	1709.8	108.0	97.9
	End US-1 WB	78.0	43.1	48.7	80.2	42.9	71.5	75.6	42.7	47.1	76.4	43.1	49.6
Total (minute)		11.0	7.4	7.9	11.7	7.3	8.4	13.1	7.3	8.0	61.5	7.3	8.1
Corridor B	Start 151 St Ramp												
	NW 135 St Ramp	49.9	95.3	163.8	85.0	76.6	137.1	136.3	107.9	184.3	145.4	94.3	160.1
	NW 125 St Ramp	100.4	150.4	212.2	158.8	124.8	189.4	237.8	167.5	241.6	244.2	145.7	208.8
	NW 103 St Ramp	196.5	335.0	389.9	271.1	277.6	351.3	372.0	313.1	402.8	342.9	279.8	380.5
	NW 95 St Ramp	78.0	127.8	115.2	95.7	115.7	105.0	119.2	112.4	113.9	116.6	114.5	119.0
	NW 79-81 St Ramp	129.7	113.5	209.2	166.9	74.0	196.0	204.7	74.1	209.8	188.3	72.9	215.8
	NW 69 St Ramp	67.1	113.0	176.4	58.8	72.9	164.5	57.9	72.2	174.9	88.8	66.5	157.5
	NW 62 St Ramp	14.8	24.6	54.3	14.0	20.2	57.0	13.8	20.8	58.7	34.3	18.0	56.9
Total (minute)		10.6	16.0	22.0	14.2	12.7	20.0	19.0	14.5	23.1	19.3	13.2	21.6
Corridor C	Co. Line												
	203 St Ramp	78.4	33.4	58.2	54.3	40.6	45.7	24.6	51.0	24.4	36.3	43.1	24.5
	NW 183 St Ramp	311.9	260.8	171.3	329.3	244.7	152.5	135.8	243.3	139.6	229.2	219.6	140.4
	SR-826/HEFT Ramp	326.4	274.2	140.2	336.8	183.5	117.3	133.0	197.3	104.2	444.2	136.6	118.0
	NW 151 St Ramp	145.2	130.1	192.3	240.3	141.7	148.3	345.1	157.9	159.0	609.9	189.9	151.7
Total (minute)		14.4	11.6	9.4	16.0	10.2	7.7	10.6	10.8	7.1	22.0	9.8	7.2

Express Lanes

Starting Point	4-5 PM			5-6 PM			6-7 PM			7-8 PM		
	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2	NoBuild	Alt1	Alt2
SB Start												
Exit to SR-112 West	533.4	343.0	410.5	531.4	502.0	398.5	561.7	749.2	403.2	762.8	597.3	387.7
SB End	93.2	518.9	500.0	93.2	520.4	500.8	94.0	521.6	498.9	343.5	523.5	548.3
Total (minute)	10.4	14.4	15.2	10.4	17.0	15.0	10.9	21.2	15.0	18.4	18.7	15.6

Appendix O

CRAVE ANALYSIS

DRAFT Cost Risk Assessment and Value Engineering Report

I-95 Corridor Planning Study
MM 0 to Broward County Line

Miami, Florida

May 2018

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Disclaimer

The information contained in this report is the professional opinions of the team members during the Cost Risk Assessment and Value Engineering (CRAVE) study. These opinions were based on the information provided to the team at the time of the study. As the project continues to develop, new information will become available, and this information will need to be evaluated on how it may affect the recommendations and findings in this report. All costs displayed in the report are based on best available information at the time of the study and are in 2018 dollars unless otherwise noted.

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Executive Summary

Introduction

This cost risk assessment and value engineering (CRAVE) report summarizes the events of the study conducted for the Florida Department of Transportation (FDOT) and facilitated by HDR Engineering, Inc. The subject of the CRAVE study was the I-95 Corridor Planning Study. Although there are individual projects as part of the overall study, there are treated as one project for the purposes of this CRAVE.

The study was conducted in May 2018. The primary objectives of the CRAVE study were to:

- Verify or improve upon the various concepts for the project.
- Identify high risk areas in delivering the project.
- Improve the value of the project through innovative measures aimed at improving the performance while reducing costs of the project.
- Perform a cost risk assessment on the baseline design.

Project Overview

The proposed project is to enhance overall traffic operations on I-95 between US-1 and the Broward County line by providing improvements to achieve acceptable levels of service (LOS) at the interchange in the future condition (2045 design year). Conditions along I-95 are anticipated to deteriorate below acceptable LOS standards if no improvements occur by 2045; the Interstate will have insufficient capacity to accommodate the projected travel demand.]

In performing the cost risk analysis, a risk based modeling tool was incorporated to model the cost and schedule uncertainty and the identified project risks. Two alternatives were reviewed and assessed: Alternative 1 is elevated while Alternative 2 is at-grade. Table 1, below, shows the project's base costs in 2018 dollars for both alternatives. Escalation to mid-point of the construction schedule was not used in this analysis. The pre-response modeled results at the 70th percentile are $8.77 billion for Alternative 1 and $7.16 billion for Alternative 2; prior to implementation of risk management strategies and value engineering (VE) recommendations.

The CRAVE team identified 32 independent risks that carry both potential schedule and cost impacts to the project. In the workshop, a likely range of schedule and costs impacts and the probability of occurrence were identified for each risk. The next step was to develop response strategies and VE recommendations for the active risks. These were added into the risk-based modeling tool as *post-response* results to measure the overall impact the risk mitigation strategies would have on the project.

Each VE recommendation was presented to the audience during the Presentation Phase of the CRAVE and a probability of implementation was sought. Each recommendation

input in the model then was adjusted with the corresponding probability and the model run. The modeled 70 percent confidence level (probability of NOT exceeding) for the total project post-mitigated cost was $8.59 billion for Alternative 1 and $5.46 billion for Alternative 2, a net reduction in projected costs of $181.6 million for Alternative 1 and $1.7 billion. Please refer to Table 2 for additional information on recommendations introduced in the model as opportunities. Additional detail is provided in the Section 7, Analysis of Results.

Table 1: Pre- and Post-mitigated CRAVE Analysis

Category	Value Pre-Response ($M)		Value Post-Response ($M)	
	Alt 1	Alt 2	Alt 1	Alt 2
Base Total Project Cost (Current Year $'s)	7,157.5	5,879.8	7,157.5	5,879.8
Base Total Project Cost (YOE $'s)	7,157.5	5,879.8	7,157.5	5,879.8
10%	7,604.7	6,203.1	7,418.8	4,053.9
70%	8,772.4	7,163.0	8,590.8	5,463.6
90%	9,277.4	7,573.8	9,093.4	6,128.1

These tables illustrate the power of proactive management and implementation of the VE recommendations in response to the identified risks. In summary, implementing the value engineering recommendations can offer an additional expected value cost reduction beyond the cost or savings of the items themselves.

The reader should be aware that as VE recommendations are implemented in the future, they will have a direct impact on the stated base costs and risk reserve amounts portrayed in this report; special attention should be given when establishing budgets for the projects.

Value Engineering Recommendations

In total, the CRAVE team generated 79 ideas for the project. These ideas were compared against the baseline concept developed by the project team. The ideas that performed the best were further developed by the CRAVE team and resulted in 16 VE recommendations being brought forward.

The recommendations developed by the CRAVE team are shown in Table 2 and are detailed in Section 6, Development Phase

Table 2: Summary of Recommendations

#	Description	Cost Difference*	% Change in Value
1	TSM&O	$0.0	+7.5
2	Bridge Life Cycle Cost Analysis	($1,062.0)	+32.3
3	Coordinate GGI Design	($102.4)	+4.2

Table 2: Summary of Recommendations

#	Description	Cost Difference*	% Change in Value
4	Constructability Options for Elevated Express Lanes	($1,036.3)	+37.7
5	Separate Connection between I-395/SR 386 and Downtown	($48.6)	+12.1
6	ABC Construction Method	($66.3	+7.7
7	Eliminate Local Connections Northbound	($200.1)	+3.6
8	Eliminate Local Connections Southbound	($29.3)	+11.4
9	P3 Procurement Process	$0.0	+10.8
10	4D Rendering	$0.3	+2.3
11	Maintain Third Level at Gratigny	($2.7)	+2.7
12	Realign I-95 in Segment 1	($22.8)	+0.1
13	Public Outreach	$8.0	+7.6
14	Separate Downtown Distributor Connections	($14.9)	+12.5
15	Improve Local Roadways	$3.5	+4.4
16	Transit – Tri-Rail	$41.2	+6.9
	Total	($2,532.4)	

To facilitate implementation, a Value Engineering Recommendation Approval Form is included in Appendix A. If the Project Manager elects to reject or modify a recommendation, please include a brief explanation of why on the bottom the form.

The CRAVE team wishes to express its appreciation to the project design team and management for the excellent support they provided during the study. These recommendations and other design considerations provided will assist in the management decisions necessary to move the project forward.

Sincerely,

Jose Theiler, PE, CVS®
Sr. Civil/Transportation Value Engineer

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1 Introduction

This report summarizes the events of the CRAVE study conducted for the Florida Department of Transportation (FDOT), facilitated by HDR Engineering, Inc. The subject of the study was the I-95 Corridor Planning Study.

1.1 Project Objectives

The corridor overall goals are to evaluate and correct existing geometric deficiencies, address reoccurring bottlenecks, incorporate adjacent projects and studies, extend the I-95 Express facility for the length of the corridor, and provide additional system-to-system express connections.

1.2 Project Scope of Services

The initial conceptual planning study was intended to give definition and direction to the PD&E studies as well as identify conflicts with improvements vs. planned projects. The scope of services included the following:

- Interagency Coordination
- Performance Measures
- Data Collection
- Existing Conditions Data Analysis
- Future Traffic Forecasting
- Operations Model Development
- Operational Analysis
- Safety Analysis
- Long-Term Conceptual Improvement Development
- Environmental Analysis
- Improvement Evaluation/Prioritization
- Reporting

Included in Scope

The conceptual study addressed deficiencies identified in the operational analysis as well as existing geometric deficiencies. The intent is to tie into planned improvements for SR 90, SR 836/I-395, and GGI, and identify conflicts with planned improvements. The scope included determining the project feasibility, right-of-way, design issues, and order-of-magnitude construction cost.

Two preliminary conceptual alternatives have been done, but the two alternatives have not moved forward. The scope was to result in one recommended alternative and long range estimate (LRE)

Not Included in Scope

- Detailed drainage analysis
- Utility impact analysis

- LRE for two conceptual alternatives
- Right-of-way cost
- ETDM Screening/Environmental Impacts analysis
- Signing Master Plan
- Toll and Revenue Study
- Geotechnical analysis
- ITS Conceptual Design

The planning study will lead to the development of three future PD&E studies along the corridor to further evaluate improvements and alternatives.

1.3 Project Descriptions

This project was created to support the Corridor Planning process currently underway for the I-95 from MM “0” to Broward County Line project**.** The planning study initially introduced alternatives as "Tier 1” Alternatives. Over 40 different cross-section concepts and features were identified for the corridor. From there, a screening criteria was developed to pare the concepts down. These criteria included engineering, cost, environmental, and the public. The results of the analysis resulted in 14 alternatives coming forward as Tier 2 alternatives. Tier 2 was then evaluated using a criteria of engineering, costs, and other issues (community and environmental).

The scoring resulted in delivering the corridor in five individual segments with an alternative 1 and 2 to each (alternative 1 is elevated; alternative 2 is at-grade). Each of the segments are defined below with the accomplishments and compromises of each alternative shown in Figure 1 through Figure 4.

1.3.1 Segment 1 over Miami River (US-1 to SR 836)

This segment will accommodate future improvements at I-395/SR 836, SR 90/SW 8th Street and maintain the existing downtown connector movements. It is assumed 25 feet is needed per level (6-level bridge) for the overall structural depth. The bridge is considered a third level bridge, even though there is nothing under it. Because of the vertical challenges at Miami River the PD&E concepts of the interchange could not be salvaged.

Figure 1. Segment 1 (US-1 to SR 836)

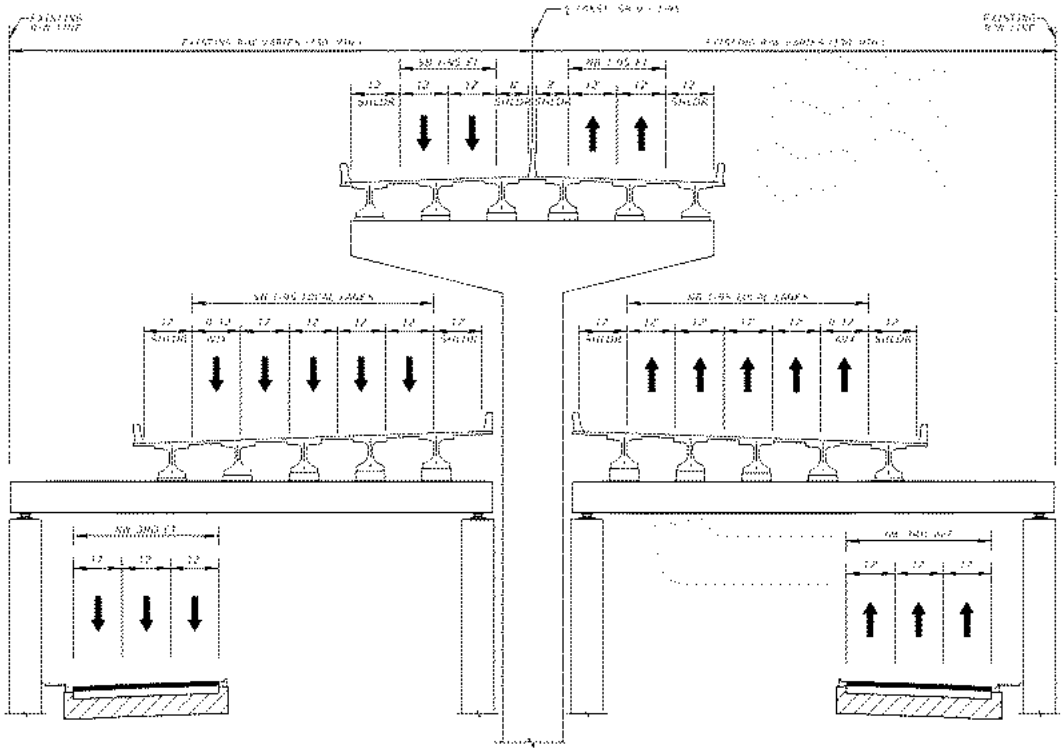


Table 3: Segment 1 Alternatives Summary

	Alternative 1	Alternative 2
Accomplishments		
	Maintain existing movements and accommodate new movements at downtown corridor	Maintain existing movements and accommodate new movements at downtown corridor
	Minimal right-of-way impacts by overlapping elevated structures	
Compromises		
	Impacts improvements provided in previous projects	Impacts improvements provided in previous projects
		Increased right-of-way acquisition, including high-rise residential buildings

1.3.2 Segment 2 (SR 836 to SR 112)

This segment would provide direct express access to and from I-195 (Miami Beach) from the north and minimize traffic friction on I-95 main line. It would maintain the existing SR 112 interchange infrastructure and provide a new interchange at NW 29th Street (Wynwood).

Figure 2. Segment 2 (SR 836 to SR 112)

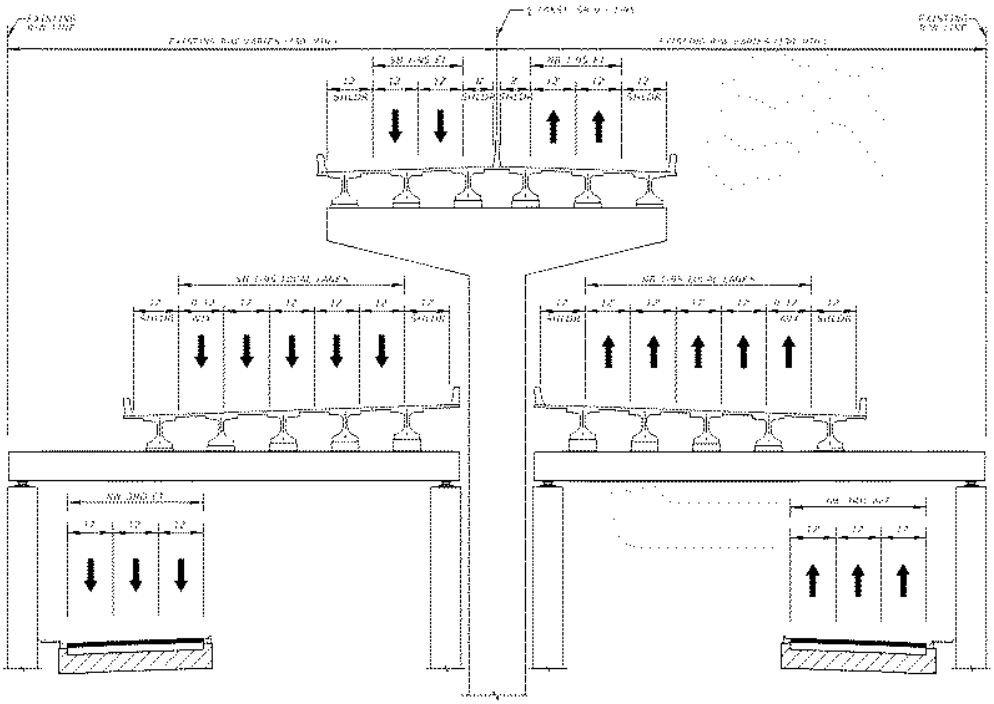


Table 4: Segment 2 Alternatives Summary

	Alternative 1	Alternative 2
Accomplishment		
	Provide direct express access to and from I-195 (Miami Beach) from the north	Provided direct express access to and from I-195 (Miami Beach) from the north
	Provided new interchange at NW 29th Street	Use of CD systems to minimize friction along I-95 mainline
	Use of CD systems to minimize friction along I-95 main line	
	Minimal right-of-way impacts by elevating the express lanes	
Compromises		
	Utilized NW 32nd St to provide some of the movements at the Wynwood interchange	Reconstruction of SR 112 Interchange Increased right-of-way acquisition

1.3.3 Segment 3 (SR 112 to South GGI)

Segment 3 would accommodate future improvements at SR 924 to provide limited access to 119th Street. This segment would minimize traffic friction on I-95 mainline by consolidating interchange accesses, and it would remove NW 69th Street Interchange. This would create a need for a southbound DC ramp on the east.

Figure 3. Segment 3 (SR 112 to South GGI)

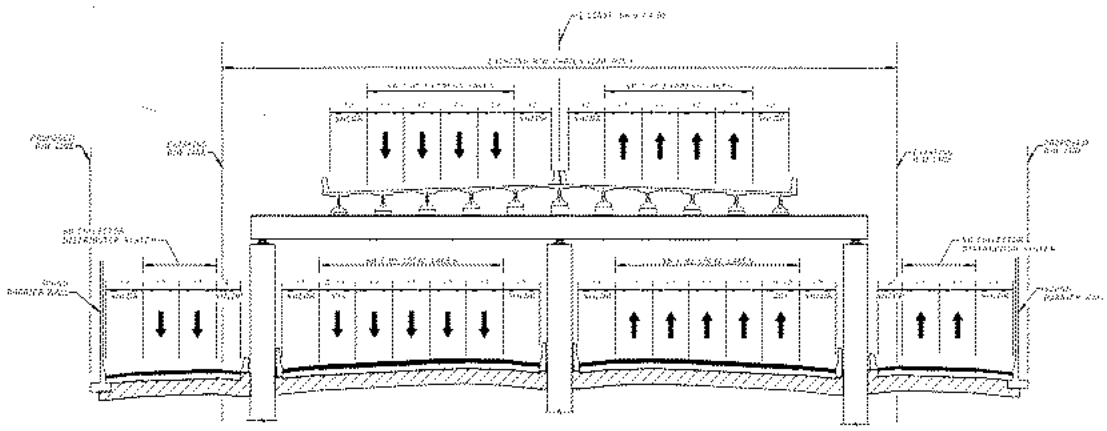


Table 5. Segment 3 Alternatives Summary

	Alternative 1	Alternative 2
Accomplishment		
	Included all of the movements from/to SR 924	Included all of the movements from/to SR 924
	Use of CD systems to minimize friction along I-95 main line	Use of CD systems to minimize friction along I-95 main line
	Minimal right-of-way impacts by elevating the express lanes	
Compromises		
	Some of the SR 924 ramps needed realignment	Some of the SR 924 ramps needed realignment
		Increased right-of-way acquisition

1.3.4 Segment 4 (GGI)

Segment 4 combines three major facilities (I-95, Palmetto, and Turnpike) as well as connections to local networks, which are very congested. This would alleviate congestion at 167th and NW 2nd Ave intersection. U-turn movements were not considered, and no improvements were planned for this interchange as it will be an “as built” condition.

Table 6: Segment 4 Alternatives Summary

	Alternative 1	*Alternative 2*
Accomplishment		
	Provided all express connections form I-95, Palmetto and Turnpike.	Provided all express connections form I-95, Palmetto and Turnpike.
	Provided all express connections form I-95, Palmetto and Turnpike.	Provided all express connections form I-95, Palmetto and Turnpike.
		Provided multiple direct connect ramps for circuitous movements
Compromises		
	Some of the improvements provided by GGI projects need reconstruction	Some of the improvements provided by GGI projects need reconstruction Additional right-of-way
		Increased the complexity of construction phasing

1.3.5 Segment 5 (GGI to County Line)

This segment addresses the southbound bottleneck at Ives Dairy Road. It would provide improvements with minimal right-of-way acquisition. It would also remove express lane ingress/egress weaving section at Miami Gardens Drive.

Figure 4. Segment 5 (GGI to County Line)

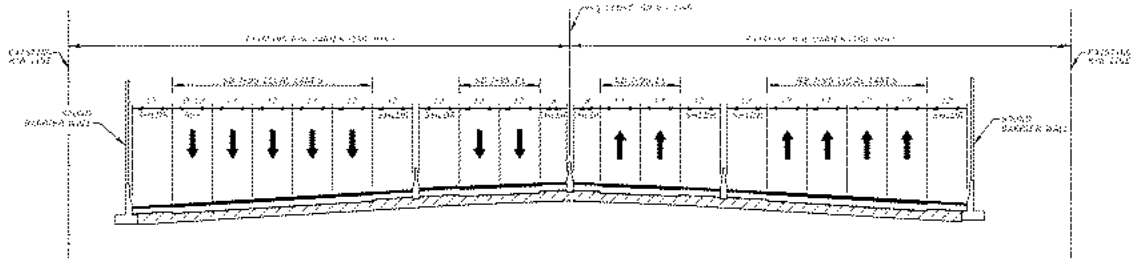


Table 7: Segment 5 Alternatives Summary

	Alternative 1	Alternative 2
Accomplishment		
	Provided direct connect ramps to express ingress/egress	Provided a DDI interchange at Ives Dairy Road to alleviate mainline traffic
	Provided fly over ramp for SB-EB movement at Ives Dairy Road to alleviate mainline traffic	

1.4 Scope of the CRAVE Study

The scope of the CRAVE study was to verify or improve upon the concepts being proposed for this project. To accomplish this, the CRAVE team applied the principles and practices of the VE Job Plan (see Appendix B) and performed the following:

- Conducted a thorough review and analysis of the key project issues using a multidiscipline, cross-functional team (i.e. review the baseline design)
- Verified or improved upon the various concepts for the I-95 corridor between US-1 and Broward County line.
- Identified high risk areas in delivering this project.
- Evaluated the staging options and constructability.
- Improved the value of the project through innovative measures aimed at improving the performance while reducing costs of the project.
- Performed a cost risk assessment on both the baseline design and the VE-recommended design.

1.5 CRAVE Approach

CRAVE is an advanced project management process that has combined the proven tools and process from cost risk assessment and value engineering process into a single process. The process uses various tools to solicit inputs from the project team and key stakeholders, quantify risks, and track the risks together with the corresponding mitigation strategies. In particular, and as Figure 5 shows, CRAVE consists of four main steps:

1.5.1 Step 1: Baseline Risk Assessment

1. Review baseline cost
2. Review baseline schedule
3. Identify risks related to baseline project
4. Assess and quantify risks in terms of project's cost and schedule

1.5.2 Step 2: Value Engineering and Risk Response Development

1. Develop value engineering recommendations that further mitigate or avoid high risk elements

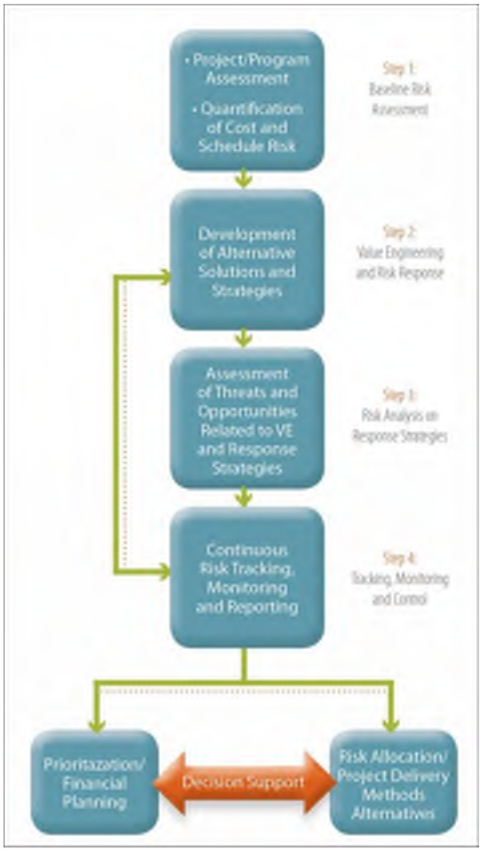


Figure 5: CRAVE Process

2. Develop recommendations that add value by modifying project scope and/or schedule

1.5.3 Step 3: Risk Analysis on Response Strategies

1. Identify risks related to response strategies
2. Assess and quantify threats and opportunities in terms of project's cost and schedule

1.5.4 Step 4: Tracking, Monitoring, and Control

1. Identify risk owners, monitoring frequency
2. Continuously update risk management plan
3. Document and report progress
4. At key milestones, update cost and schedule

1.6 CRAVE Study Timing

The study was conducted over a 3-week period starting May 9 through May 24, 2018 with the presentation of findings held June 3, 2018.

1.7 CRAVE Team Members

The list of team members for the CRAVE study is provided below. Other attendees are identified on a sign-in sheet, which is provided in Appendix C.

Hong Benitez, FDOT

Lori Buffington, HDR

John Danielson, HDR

Peter Garr, HDR

Will Hume, HDR

Blane Long, HDR

Calvin Mason, FDOT

Juliana Ortiz, HDR

Anthony Sabbag, HDR

Jose Theiler, HDR (Facilitator)

Steven Waterston, HDR

Figure 6: CRAVE Team

2 Information Phase

2.1 Summary of Analysis

The following analysis tools were used to study the project:

- Information Provided to the CRAVE team
- Constraints and Controlling Decisions
- Investigation Observations
- Base Cost Review
- Cost Model
- Uncertainty
- Project Schedule Review
- Project Escalation Assumptions
- Performance Attributes
- Function Analysis
- FAST Diagram

2.2 Information Provided to the CRAVE Team

The following project documents were provided to the team for their use during the study.

Table 8: Information Provided to CRAVE Team

Document	Date
Drawings/Boards	
Segment 1, Alternative 1	
Segment 1, Alternative 2	
Segment 2, Alternative 1	
Segment 2, Alternative 1 with no express	
Segment 2, Alternative 2	
Segment 3, Alternative 1	
Segment 3, Alternative 1 with no express	
Segment 3, Alternative 2	
Segment 4, Alternative 1	
Segment 4, Alternative 2	
Segment 5, Alternative 1	
Segment 5, Alternative 2	

Table 8: Information Provided to CRAVE Team

Document	Date
Presentations	
Workshop and sign-in sheet	2/15/18
Estimates	
Alt 1 Bridge Cost Estimate	
Alt 2 Bridge Cost Estimate	
Demolition Cost Estimate	
Opinion of Probable Cost	5/2/18
Other Documents/Files	
VE Project Description	4/4/18
Kmz files (Google Earth) for Alternatives 1 and 2 Overall	

2.3 Constraints and Controlling Decisions

As part of the project briefing, the main project constraint given to the CRAVE team was that I-95 must remain operable at all times.

2.4 Base Cost Review

One of the objectives of a cost risk assessment is to review the base cost estimate in a collaborative setting with independent expert opinion and project team members. The base cost estimate represents the project cost that can reasonably be expected if the project materializes as planned, and there is no occurrence of significant risk. Initially the team was provided a Long Range Estimate Report (Appendix D). As the workshop progressed, additional items were added so the team could provide an accurate representation of line items. The resulting estimate is shown below in Table 9.

Table 9: Project Cost Estimate

	Alternative 1	Alternative 2
Roadway Reconstruction (Cost per mile models)	$280,640,000	$378,400,000
Retaining Wall - 18' average height - $32/SF	$100,056,960	$97,892,352
Retaining Wall - 24' average height - $32/SF	$159,285,504	$123,260,160
Noise Wall - 16' average height - $30/SF	$32,976,000	$36,528,000
Existing Structures Demolition	$259,393,020	$259,393,020
Bridges (unit price shown is the rounded average from total bridge cost table)	$3,127,720,345	$2,188,037,620
Additional Drainage	$198,003,592	$154,175,558
Additional Signing Structures	$39,600,718	$30,835,112
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	$198,003,592	$154,175,558
Utility Relocations (Added during workshop)	$19,800,359	$15,417,556

Table 9: Project Cost Estimate

	Alternative 1	Alternative 2
Additional MOT	$396,007,183	$308,351,115
Contingency	$594,010,774	$462,526,673
Segment A Design-Build Design	$324,329,883	$252,539,563
Segment A Design-Build Construction QC	$162,164,941	$126,269,782
PDE and RFP	$235,679,715	$183,512,083
Environmental (EIS)	$117,839,857	$91,756,041
Project Management	$176,759,786	$137,634,062
FDOT Construction Engineering	$294,599,644	$229,390,103
Right-of-way	$440,650,000	$649,700,000
TOTAL	**$7,157,521,873**	**$5,879,794,360**

The base cost estimate is unbiased and neutral - it is neither optimistic nor conservative. The base cost includes the known and quantified items and the known but not yet quantified items or miscellaneous item allowances. The base cost estimate does not include any risks (either threats or opportunities), unknown/unknowns, or contingencies.

2.5 Cost Model

The CRAVE team leader prepared a cost model for both alternatives from the most recent cost estimate provided by the project manager. The cost model is organized to identify major construction elements or trade categories, and the percent of total project cost for the significant cost items. Development of this cost model allows the team to focus on project elements with the highest degree of impact and utilize workshop time most effectively.

Table 10: Cost Inputs Alternative 1

	Low	Most Likely	High
Segment 1 & 2 - PD&E Development	$43,015,352	$53,003,191	$64,035,309
Segment 1 & 2 - EIS	$50,184,577	$61,837,056	$74,707,860
Segment 1 & 2 - RFQ	$14,338,451	$14,338,451	$14,338,451
Segment 1 & 2 - RFP Development	$28,676,901	$28,676,901	$28,676,901
Segment 1 & 2 – R/W (258+117 parcels)	$219,174,500	$257,600,000	$298,714,500
Segment 1 & 2 - Design-Build Selection	$14,338,451	$14,338,451	$14,338,451
Segment 1 & 2 - Design-Build Design	$138,122,689	$170,193,733	$205,617,964
Segment 1 & 2 - Design-Build Construction	$2,371,106,169	$2,921,659,080	$3,529,775,045
Segment 1 & 2 – CE&I	$125,461,443	$154,592,641	$186,769,650
Segment 1 & 2 - Project Management	$75,276,866	$92,755,584	$112,061,790
Segment 3 - PD&E Development	$30,406,083	$37,768,573	$45,931,864
Segment 3 - EIS	$30,406,083	$37,768,573	$45,931,864
Segment 3 - RFQ	$5,067,681	$6,294,762	$7,655,311

Table 10: Cost Inputs Alternative 1

	Low	Most Likely	High
Segment 3 - RFP Development	$15,203,042	$18,884,286	$22,965,932
Segment 3 - R/W (244 parcels)	$142,082,000	$167,100,000	$193,872,000
Segment 3 - Design-Build Selection	$15,203,042	$18,884,286	$22,965,932
Segment 3 - Design-Build Design	$83,686,468	$103,950,201	$126,417,974
Segment 3 - Design-Build Construction	$1,436,617,695	$1,784,478,446	$2,170,175,218
Segment 3 - CE&I	$76,015,208	$94,421,432	$114,829,660
Segment 3 - Project Management	$45,609,125	$56,652,859	$68,897,796
Segment 4 & 5 - PD&E Development	$16,753,118	$19,891,885	$23,273,456
Segment 4 & 5 - EIS	$15,357,025	$18,234,228	$21,334,001
Segment 4 & 5 - RFQ	$2,792,186	$3,315,314	$3,878,909
Segment 4 & 5 - RFP Development	$5,584,373	$6,630,628	$7,757,819
Segment 4 & 5 - R/W (13+23 parcels)	$13,589,750	$15,950,000	$18,474,750
Segment 4 & 5 - Design-Build Selection	$5,584,373	$6,630,628	$7,757,819
Segment 4 & 5 - Design-Build Design	$42,267,040	$50,185,949	$58,717,435
Segment 4 & 5 - Design-Build Construction	$725,584,195	$861,525,462	$1,007,982,637
Segment 4 & 5 - CE&I	$38,392,562	$45,585,571	$53,335,004
Segment 4 & 5 - Project Management	$23,035,537	$27,351,342	$32,001,002

Table 11: Cost Inputs Alternative 2

	Low	Most Likely	High
Segment 1 & 2 - PD&E Development	$39,846,174	$48,975,750	$59,049,335
Segment 1 & 2 - EIS	$46,487,203	$57,138,375	$68,890,891
Segment 1 & 2 - RFQ	$13,282,058	$16,325,250	$19,683,112
Segment 1 & 2 - RFP Development	$26,564,116	$32,650,500	$39,366,224
Segment 1 & 2 – R/W (258+117 parcels)	$231,994,750	$272,450,000	$315,729,750
Segment 1 & 2 - D/B Selection	$13,282,058	$16,325,250	$19,683,112
Segment 1 & 2 - D/B Design	$127,946,430	$157,261,582	$189,607,957
Segment 1 & 2 – D/B Construction	$2,196,413,715	$2,699,657,152	$3,254,936,602
Segment 1 & 2 – CE&I	$116,218,007	$142,845,937	$172,227,228
Segment 1 & 2 - Project Management	$69,730,804	$85,707,562	$103,336,337
Segment 3 - PD&E Development	$15,189,466	$18,318,465	$21,742,550
Segment 3 - EIS	$15,189,466	$18,318,465	$21,742,550
Segment 3 - RFQ	$2,531,578	$3,053,077	$3,623,758

Table 11: Cost Inputs Alternative 2

	Low	Most Likely	High
Segment 3 - RFP Development	$7,594,733	$9,159,232	$10,871,275
Segment 3 - R/W (244 parcels)	$285,446,500	$335,600,000	$389,266,500
Segment 3 - D/B Selection	$7,594,733	$9,159,232	$10,871,275
Segment 3 - D/B Design	$41,805,870	$50,417,792	$59,841,881
Segment 3 - D/B Construction	$717,667,437	$865,505,438	$1,027,285,617
Segment 3 - CE&I	$37,973,665	$45,796,162	$54,356,375
Segment 3 - Project Management	$22,784,199	$27,477,697	$32,613,825
Segment 4 & 5 - PD&E Development	$14,900,626	$17,780,948	$20,897,533
Segment 4 & 5 - EIS	$13,658,907	$16,299,202	$19,156,071
Segment 4 & 5 - RFQ	$2,483,438	$2,963,491	$3,482,922
Segment 4 & 5 - RFP Development	$4,966,875	$5,926,983	$6,965,844
Segment 4 & 5 - R/W (13+23 parcels)	$35,477,750	$41,650,000	$48,252,750
Segment 4 & 5 - D/B Selection	$4,966,875	$5,926,983	$6,965,844
Segment 4 & 5 - D/B Design	$37,593,321	$44,860,189	$52,723,133
Segment 4 & 5 - D/B Construction	$645,352,015	$770,099,915	$905,080,442
Segment 4 & 5 - CE&I	$34,147,267	$40,748,005	$47,890,179
Segment 4 & 5 - Project Management	$20,488,360	$24,448,803	$28,734,107

Figure 7: Cost Model—Alternative 1

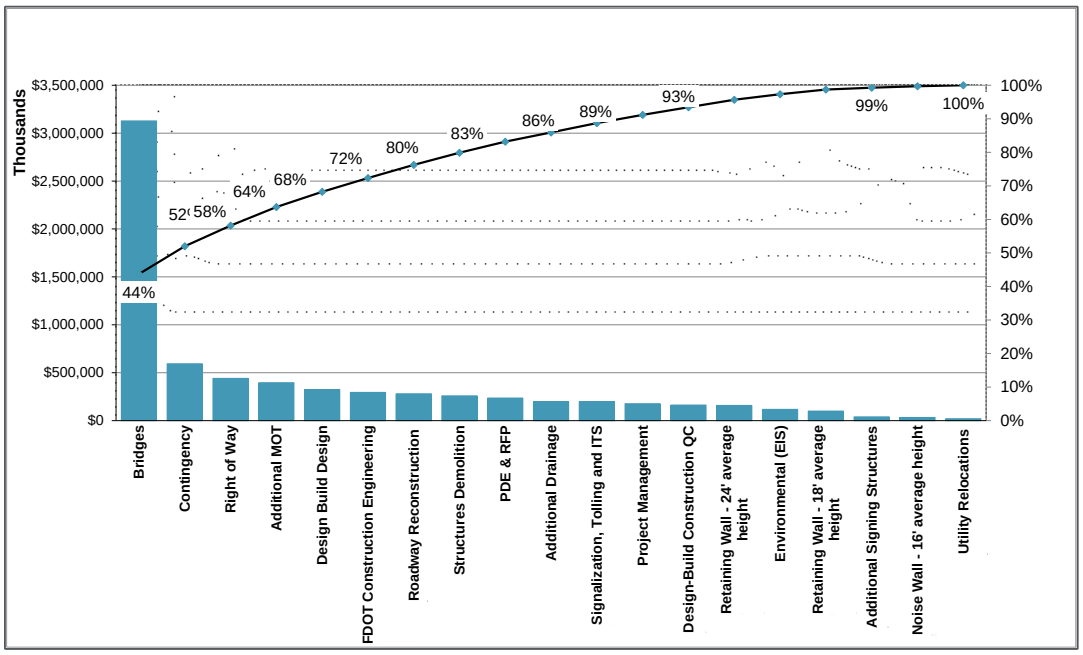
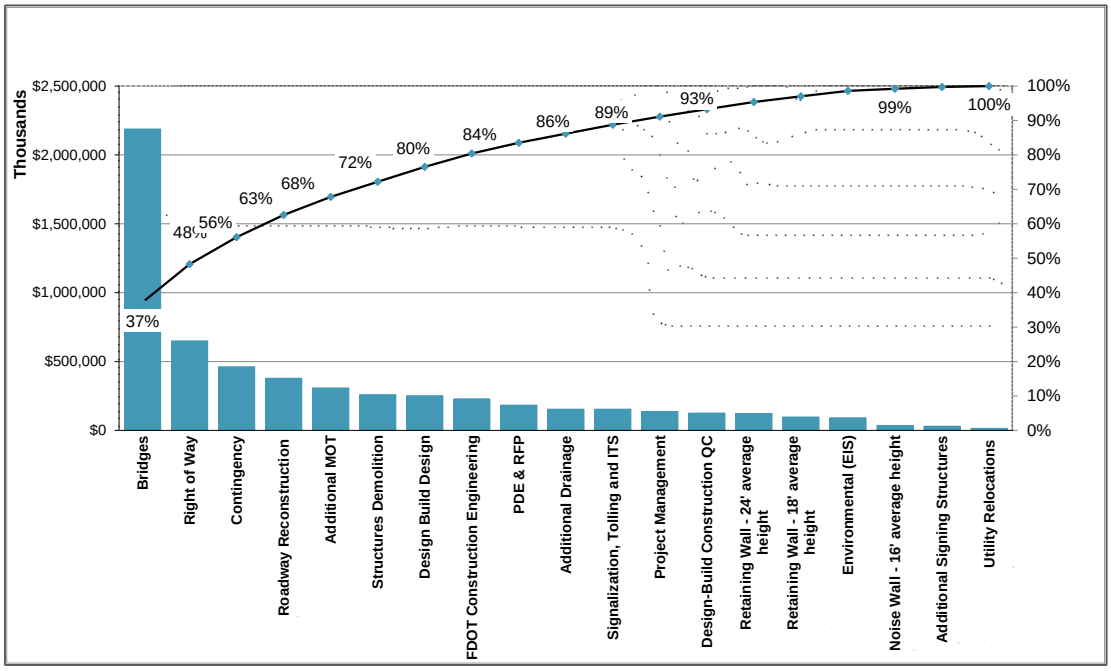


Figure 8: Cost Model—Alternative 2



2.6 Uncertainty

Estimating is not an exact science; a cost estimate is an approximation of the costs composed of many elements that may not be completely defined at the time the estimate is prepared. As a result, there is variability or uncertainty associated with any estimate. When applied to the project estimate, this uncertainty establishes the range that the base

cost could fall within. A numerical value of uncertainty is, in essence, an estimate of the error or tolerance within the quantity or unit price of each item within the estimate.

For any given project, the level of uncertainty is directly related to its position in the project life cycle (i.e., the earlier in the project development process, the greater the uncertainty; conversely, the closer to completion, the less uncertainty).

In establishing the uncertainty ranges for each item, consideration was given to factors that might affect quantities or bid prices, such as project location (rural vs. urban), quantities (large or small), items that are difficult to construct or site constraints, methods of payments, timing of advertisement, specialty work, geotechnical and project delivery methods. The yellow cells in Table 12 and Table 13 represent the input values provided by the team; while the orange cells represent the calculated values based on the inputs.

Uncertainty was established for the base costs based on all available information at the time of the workshop. Doing this established an uncertainty in the base construction costs of -19 percent to +22 percent.

2.7 Project Schedule Review

The project delivery is Design-Build. For Alternative 1, the Record of Decision (ROD) is expected to be attained by July-2022, Right-of-way acquisition is anticipated be the most critical in the development process which will take 61 months to acquire 457 parcels in segment 1&2, 46 months to acquire 244 parcels in Segment 3, and 28 months to acquire 36 parcels in Segment 4&5. Construction is scheduled to start in July 2027 for Segments 1&2 and its duration is 60 months; Segment 3 will start in June 2026 and last for 48 months; and Segments 4 & 5 will start in January 2025 and extend for 48 months as well.

For Alternative 2, the Record of Decision (ROD) is expected to be attained by July-2022, Right-of-way acquisition is also anticipated be the most critical in the development process which will take 71 months to acquire 375 parcels in segment 1&2, 85 months to acquire 244 parcels in Segment 3, and 28 months to acquire 36 parcels in Segment 4&5. Construction is scheduled to start in July 2028 for Segments 1&2 and its duration is 60 months; Segment 3 will start in September 2029 and last for 36 months; and Segments 4 & 5 will start in July 2025 and extend for 48 months.

Table 12: Alternative 1 Schedule

Activity ID	Activity Name	Start Date	End Date	Duration Months
100-A1	Alt 1 - Segment 1 & 2 - PD&E Development	7/1/18	6/30/21	36
110-A1	Alt 1 - Segment 1 & 2 - EIS	7/1/19	6/30/22	36
115-A1	Alt 1 - Segment 1 & 2 - ROD	7/1/22	7/1/22	
120-A1	Alt 1 - Segment 1 & 2 - RFQ	9/1/23	8/31/24	12
130-A1	Alt 1 - Segment 1 & 2 - RFP Development	9/1/24	9/1/26	24
150-A1	Alt 1 - Segment 1 & 2 - Right of Way (258+117 parcels)	7/1/22	7/31/27	61
140-A1	Alt 1 - Segment 1 & 2 - Design-Build Selection Process	9/1/26	9/1/27	12
160-A1	Alt 1 - Segment 1 & 2 - NTP	9/1/27	9/1/27	
170-A1	Alt 1 - Segment 1 & 2 - Design-Build Design	9/1/27	8/31/29	24
180-A1	Alt 1 - Segment 1 & 2 - Design-Build Construction	9/1/27	8/31/32	60
190-A1	Alt 1 - Segment 1 & 2 - FDOT Construction Engineering	9/1/27	8/31/32	60
195-A1	Alt 1 - Segment 1 & 2 - Operationally Complete	9/1/32	9/1/32	
200-A1	Alt 1 - Segment 1 & 2 - Project Management	7/1/19	9/1/32	158
300-A1	Alt 1 - Segment 3 - PD&E Development	7/1/18	6/30/21	36
310-A1	Alt 1 - Segment 3 - EIS	7/1/19	6/30/22	36
315-A1	Alt 1 - Segment 3 - ROD	7/1/22	7/1/22	
320-A1	Alt 1 - Segment 3 - RFQ	6/1/23	11/30/23	6
330-A1	Alt 1 - Segment 3 - RFP Development	12/1/23	5/31/25	18
350-A1	Alt 1 - Segment 3 - Right of Way (244 parcels)	7/1/22	5/1/26	46
340-A1	Alt 1 - Segment 3 - Design-Build Selection Process	6/1/25	6/1/26	12
360-A1	Alt 1 - Segment 3 - NTP	6/1/26	6/1/26	
370-A1	Alt 1 - Segment 3 - Design-Build Design	6/1/26	5/31/28	24
380-A1	Alt 1 - Segment 3 - Design-Build Construction	6/1/26	6/1/30	48
390-A1	Alt 1 - Segment 3 - FDOT Construction Engineering	6/1/26	6/1/30	48
395-A1	Alt 1 - Segment 3 - Operationally Complete	6/1/30	6/1/30	
400-A1	Alt 1 - Segment 3 - Project Management	7/1/19	6/1/30	131
500-A1	Alt 1 - Segment 4 & 5 - PD&E Development	7/1/18	6/30/21	36
510-A1	Alt 1 - Segment 4 & 5 - EIS	7/1/19	6/30/22	36
515-A1	Alt 1 - Segment 4 & 5 - ROD	7/1/22	7/1/22	
520-A1	Alt 1 - Segment 4 & 5 - RFQ	7/1/22	12/31/22	6
530-A1	Alt 1 - Segment 4 & 5 - RFP Development	1/1/23	1/1/24	12
550-A1	Alt 1 - Segment 4 & 5 - Right of Way (13+23 parcels)	7/1/22	10/31/24	28

Table 12: Alternative 1 Schedule

Activity ID	Activity Name	Start Date	End Date	Duration Months
540-A1	Alt 1 - Segment 4 & 5 - Design-Build Selection Selection	1/1/24	12/31/24	12
560-A1	Alt 1 - Segment 4 & 5 - NTP	1/1/25	1/1/25	
570-A1	Alt 1 - Segment 4 & 5 - Design-Build Design	1/1/25	6/29/26	18
580-A1	Alt 1 - Segment 4 & 5 - Design-Build Construction	1/1/25	1/1/29	48
590-A1	Alt 1 - Segment 4 & 5 - FDOT Construction Engineering	1/1/25	1/1/29	48
595-A1	Alt 1 - Segment 4 & 5 - Operationally Complete	1/1/29	1/1/29	
600-A1	Alt 1 - Segment 4 & 5 - Project Management	7/1/19	1/1/29	114

Table 13: Alternative 1 Schedule

Activity ID	Activity Name	Start Date	End Date	Duration Months
600-A1	Alt 1 - Segment 4 & 5 - Project Management	7/1/19	1/1/29	114
100-A2	Alt 2 - Segment 1 & 2 - PD&E Development	7/1/18	6/30/21	36
110-A2	Alt 2 - Segment 1 & 2 - EIS	7/1/19	6/30/22	36
115-A2	Alt 2 - Segment 1 & 2 - ROD	7/1/22	7/1/22	0
120-A2	Alt 2 - Segment 1 & 2 - RFQ	7/1/23	6/30/25	24
130-A2	Alt 2 - Segment 1 & 2 - RFP Development	7/1/25	7/1/27	24
150-A2	Alt 2 - Segment 1 & 2 - Right of Way (258+117 parcels)	7/1/22	5/31/28	71
140-A2	Alt 2 - Segment 1 & 2 - Design-Build Selection Process	7/1/27	6/30/28	12
160-A2	Alt 2 - Segment 1 & 2 - NTP	7/1/28	7/1/28	0
170-A2	Alt 2 - Segment 1 & 2 - Design-Build Design	7/1/28	7/1/30	24
180-A2	Alt 2 - Segment 1 & 2 - Design-Build Construction	7/1/28	7/1/33	60
190-A2	Alt 2 - Segment 1 & 2 - FDOT Construction Engineering	7/1/28	7/1/33	60
195-A2	Alt 2 - Segment 1 & 2 - Operationally Complete	7/1/33	7/1/33	0
200-A2	Alt 2 - Segment 1 & 2 - Project Management	7/1/19	7/1/33	168
300-A2	Alt 2 - Segment 3 - PD&E Development	7/1/18	6/30/21	36
310-A2	Alt 2 - Segment 3 - EIS	7/1/19	6/30/22	36
315-A2	Alt 2 - Segment 3 - ROD	7/1/22	7/1/22	0
320-A2	Alt 2 - Segment 3 - RFQ	9/1/26	2/28/27	6
330-A2	Alt 2 - Segment 3 - RFP Development	3/1/27	9/1/28	18

Table 13: Alternative 1 Schedule

Activity ID	Activity Name	Start Date	End Date	Duration Months
350-A2	Alt 2 - Segment 3 - Right of Way (244 parcels)	7/1/22	7/31/29	85
340-A2	Alt 2 - Segment 3 - Design-Build Selection Process	9/1/28	9/1/29	12
360-A2	Alt 2 - Segment 3 - NTP	9/1/29	9/1/29	0
370-A2	Alt 2 - Segment 3 - Design-Build Design	9/1/29	2/27/31	18
380-A2	Alt 2 - Segment 3 - Design-Build Construction	9/1/29	8/31/32	36
390-A2	Alt 2 - Segment 3 - FDOT Construction Engineering	9/1/29	8/31/32	36
395-A2	Alt 2 - Segment 3 - Operationally Complete	9/1/32	9/1/32	0
400-A2	Alt 2 - Segment 3 - Project Management	7/1/19	9/1/32	158
500-A2	Alt 2 - Segment 4 & 5 - PD&E Development	7/1/18	6/30/21	36
510-A2	Alt 2 - Segment 4 & 5 - EIS	7/1/19	6/30/22	36
515-A2	Alt 2 - Segment 4 & 5 - ROD	7/1/22	7/1/22	0
520-A2	Alt 2 - Segment 4 & 5 - RFQ	7/1/22	12/31/22	6
530-A2	Alt 2 - Segment 4 & 5 - RFP Development	1/1/23	7/1/24	18
550-A2	Alt 2 - Segment 4 & 5 - Right of Way (13+23 parcels)	7/1/22	10/31/24	28
540-A2	Alt 2 - Segment 4 & 5 - Design-Build Selection	7/1/24	7/1/25	12
560-A2	Alt 2 - Segment 4 & 5 - NTP	7/1/25	7/1/25	0
570-A2	Alt 2 - Segment 4 & 5 - Design-Build Design	7/1/25	7/1/27	24
580-A2	Alt 2 - Segment 4 & 5 - Design-Build Construction	7/1/25	7/1/29	48
590-A2	Alt 2 - Segment 4 & 5 - FDOT Construction Engineering	7/1/25	7/1/29	48
595-A2	Alt 2 - Segment 4 & 5 - Operationally Complete	7/1/29	7/1/29	0
600-A2	Alt 2 - Segment 4 & 5 - Project Management	7/1/19	7/1/29	120

2.8 Project Escalation Assumptions

FDOT uses an internal process to escalate present day cost (PDC) to year of expenditure (YOE). The CRAVE team used PDC only and results are expressed in current year dollars.

2.9 Performance Attributes

Performance attributes are an integral part of the value analysis process. The performance of each project must be properly defined and agreed upon by the project team, CRAVE team, and stakeholders at the beginning of the each study. These attributes represent those aspects of a project's scope and schedule that possess a range of potential values.

Performance attributes can generally be divided between project scope components (mainline operations, environmental impacts, maintainability, etc.) and project delivery components. It is important to make a distinction between performance attributes and performance requirements. Performance requirements are mandatory and binary in nature. All performance requirements MUST be met by any VE recommendation being considered.

Performance attributes possess a range of acceptable levels of performance. For example, if the project was the design and construction of a new bridge, a performance requirement might be that the bridge must meet all current seismic design criteria. In contrast, a performance attribute might be project schedule, which means that a wide range of alternatives could be acceptable that had different durations.

The CRAVE team, along with the project team, identified and defined the performance attributes for this project and then defined the baseline concept as it pertains to these attributes. The following performance attributes were used throughout the study to identify, evaluate, and document ideas and recommendations.

Table 14: Performance Attributes

Performance Attribute	Description	Baseline
Main Line Operations	An assessment of traffic operations and safety on the main line within the project limits. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	Alternative 1: Design speed 65 mph; posted speed 55 mph; 12-foot lanes (GP and Express); 12-foot inside and outside shoulders (GP and Express); express lanes are elevated; transit is not included in the baseline Alternative 2: Design speed 65 mph; posted speed 55 mph; 12-foot lanes (GP and Express); 12-foot inside and outside shoulders (GP and Express); express lanes at same level; transit is not included in the baseline

Table 14: Performance Attributes

Performance Attribute	Description	Baseline
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Local Operations include frontage roads as well as cross roads. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations and access.	Alternative 1: Segment 5 has existing tight diamond at Ives Dairy Rd; Segment 2 provides a new interchange at NW 29th Street; transit is not included in the baseline Alternative 2: Segment 5 proposes a DDI at Ives Dairy Road; transit is not included in the baseline
Maintainability	An assessment of the long-term maintainability of the facilities and equipment. Maintenance considerations include the overall durability, longevity, and maintainability of structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	Alternative 1: All express lanes are elevated in the middle of the road and maximum height is increased; requires twice as much square footage for retaining walls; stormwater inlets on structures and two enclosed stormwater systems Alternative 2: All express lanes are at the same level; requires four separate enclosed stormwater systems
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to existing utilities; impacts to businesses and residents relative to access, visual effects, noise, vibration, dust, and construction traffic; environmental impacts.	Alternative 1: Maintain four GP lanes in both directions during peak hours; drilled shafts or driven piles Alternative 2: Maintain four GP lanes in both directions during peak hours; drilled shafts or driven piles
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts; impacts to shore edge; impacts to cultural, recreational and historic resources.	Total of 63 social/economic facilities along the corridor More than 300 Sec 4(f) or potential historic sites or structures, including parks and recreational facilities Nineteen acres of wetlands and more than 20 critical habitat areas, as well as more than 250 potentially contaminated sites
Project Schedule	An assessment of the total project delivery from the time as measured from the time of the VE Study to completion of construction.	PD&E, PE, & Procurement: 7 years Alternative 1 Construction: 8 years Alternative 2 Construction: 8 years

Table 14: Performance Attributes

Performance Attribute	Description	Baseline
Access and Conflicts	Addresses crash patterns, emergency vehicle access, barrier separation between express lanes/general purpose lanes, congestion, and minimizes left-side access points.	"12-foot inside and outside shoulders (GP and Express) Barrier separated express lanes "
Constructability/ MOT	Level of complexity, staging, and phasing. Additional right-of-way for MOT; number of lanes. Is the project constructible?	Roadway reconstruction includes 10% MOT; bridges have a complexity factor added; there is an additional 10% MOT and a 15% contingency.

2.10 Performance Attribute Matrix

A matrix was used to determine the relative importance of the individual performance attributes for the project. The project and VE teams evaluated the relative importance of the performance attributes that would be used to evaluate the creative ideas.

These attributes were compared in pairs, asking the question: “Which one is more important to the purpose and need of the project?” The letter code (e.g., “A”) was entered into the matrix for each pair.

Figure 9: Performance Attribute Matrix

Performance Attributes Criteria Matrix										
Paired Comparison									Total points	% of Total
Main Line Operations	A	A	A	A	A/E	A	A/G	A	7.0	19.4%
Local Operations		B	B	B/D	E	B	B/G	B	5.0	13.8%
Maintainability			C	C	E	C	G	C	4.0	11.1%
Construction Impacts				D	E	D/F	G	H	2.0	5.5%
Environmental Impacts					E	E	G	E/H	6.0	17.0%
Project Schedule						F	G	H	1.5	4.1%
Access and Conflicts							G	G	7.0	19.4%
Constructibility/MOT								H	3.5	9.7%
								Total	36.0	100.0%

Without emphasis on preference

A = A is of greater importance

A/B = A and B are of equal importance

OR

With emphasis on preference

A# = A is of greater importance with preference emphasis *#*

A/B = A and B are of equal importance

How Important

3 - Major Preference

WITH *2 - Medium Preference*

A - Minor Preference

After all pairs were discussed, they were tallied (after normalizing the scores by adding a point to each attribute) and the percentages calculated. These scores were then used to calculate the value of each recommendation during the performance evaluation scoring team review for each recommendation.

2.11 Function Analysis

Function analysis results in a unique view of the project. It transforms project elements into functions, which moves the CRAVE team mentally away from the original design and takes it toward a functional concept of the project.

Functions are defined in verb-noun statements to reduce the needs of the project to their most elemental level. Identifying the functions of the major design elements of the project allows a broader consideration of alternative ways to accomplish the functions. The major functions identified by the team are shown in Table 15.

Table 15: Functions

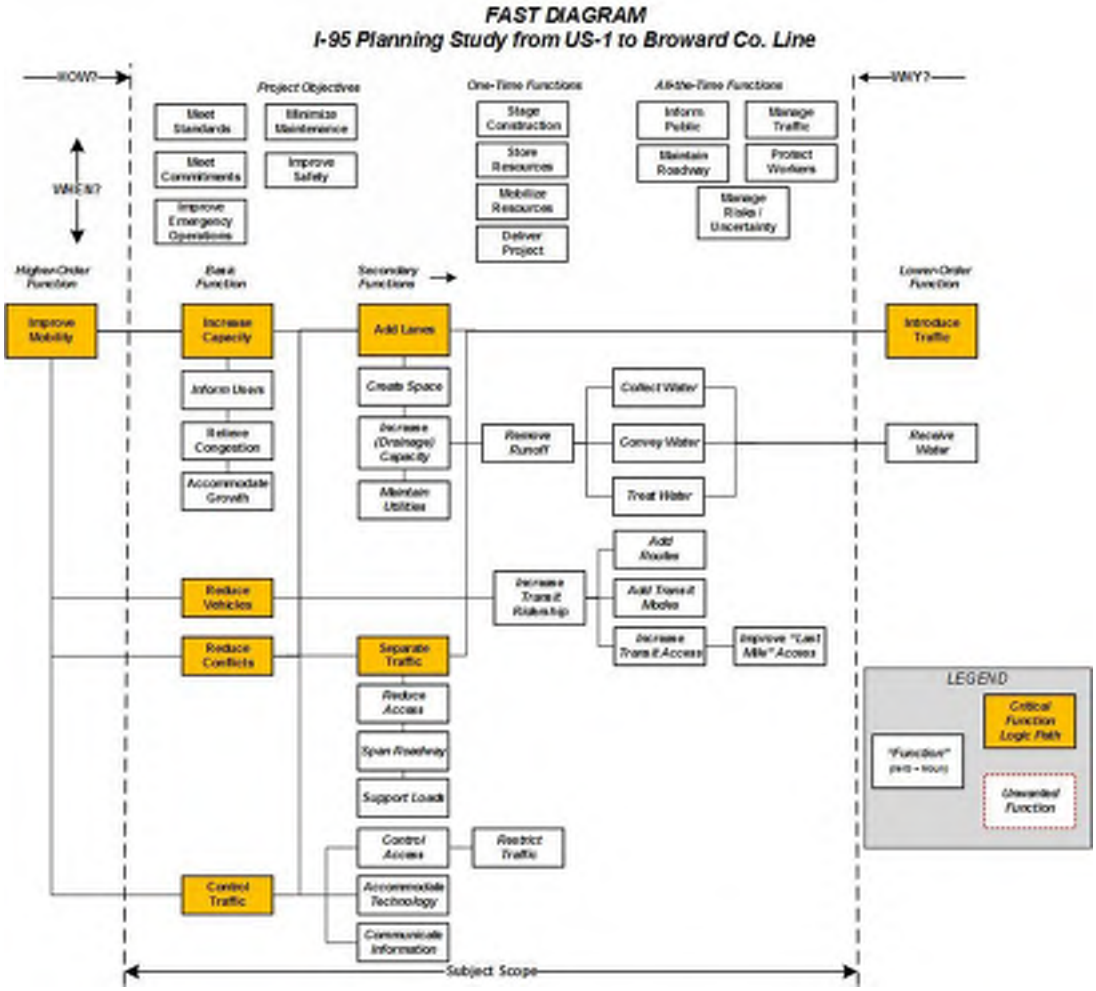
VERB	NOUN
Accommodate	Technology
Add	Lanes
Collect	Water
Control	Traffic
Convey	Water
Create	Space
Deliver	Project
Deliver	Project
Eliminate	Access
Improve	Mobility
Improve	Access
Improve	“Last-Mile” Access
Improve	Emergency Operations
Improve	Safety
Increase	Capacity
Increase	Capacity
Increase	Transit Access
Increase	Transit Ridership
Inform	Public
Introduce	Traffic
Maintain	Roadway
Maintain	Utilities
Manage	Traffic
Manage	Risks / Uncertainty
Meet	Standards
Meet	Commitments
Minimize	Maintenance
Mobilize	Resources
Protect	Workers
Reduce	Conflicts
Reduce	Vehicles
Remove	Runoff
Restrict	Traffic
Separate	Traffic
Span	Roadway
Stage	Construction
Store	Resources
Support	Load
Treat	Stormwater

2.12 FAST Diagram

The Function Analysis System Technique or FAST diagram arranges the functions in logical order so that when read from left to right; the functions answer the question "How?" If the diagram is read from right to left, the functions answer the question "Why?" Functions connected with a vertical line are those that happen at the same time as, or are caused by, the function at the top of the column.

The FAST Diagram for this project shows Correct Safety Issues as the basic function of this project. A key secondary function was increase capacity and control traffic. This provided the CRAVE team with an understanding of the project design rationale and which functions offer the best opportunity for cost or performance improvement.

Figure 10: FAST Diagram



3 Baseline Risk Assessment

In evaluating the risk for the project, a CRAVE process was utilized. The cost risk assessment portion of the evaluation was used to identify the range of unexpected project costs as it relates to total project cost, as well as potential delays in schedule that might arise.

The team discussed the potential risk events and elements facing the project. During the discussion of the project, the team identified high risk elements or potential events that may occur that would impact the project. For each significant risk event that was identified, the probability of the risk and its impact to cost, schedule, or both was estimated.

The risk assessment process includes identifying high risk areas and risk elements as threats (or opportunities where appropriate) to a project, quantifying the identified risk elements, developing appropriate risk response strategies, and quantifying the effects of the risk response strategies to be employed.

The risk assessment process quantified risk events by establishing the expected probability of occurrence and range of impacts through elicitation of information from the CRAVE team. The range of impacts defines the representative distribution to be used when modeling the risk. The probability determines the relative frequency (or likelihood) of an event transpiring.

The CRAVE team identified 28 risks, all of which remain active risks that pose potential schedule and/or cost threats and opportunities to the I-95 Corridor Planning Study Project. The full list of risks and impacts can be found in the Risk Data Sheets in Appendix E. Below is a Tornado Diagram highlighting the top 10 cost risks and the top 10 schedule risks.

Figure 11 - Top Cost Risks

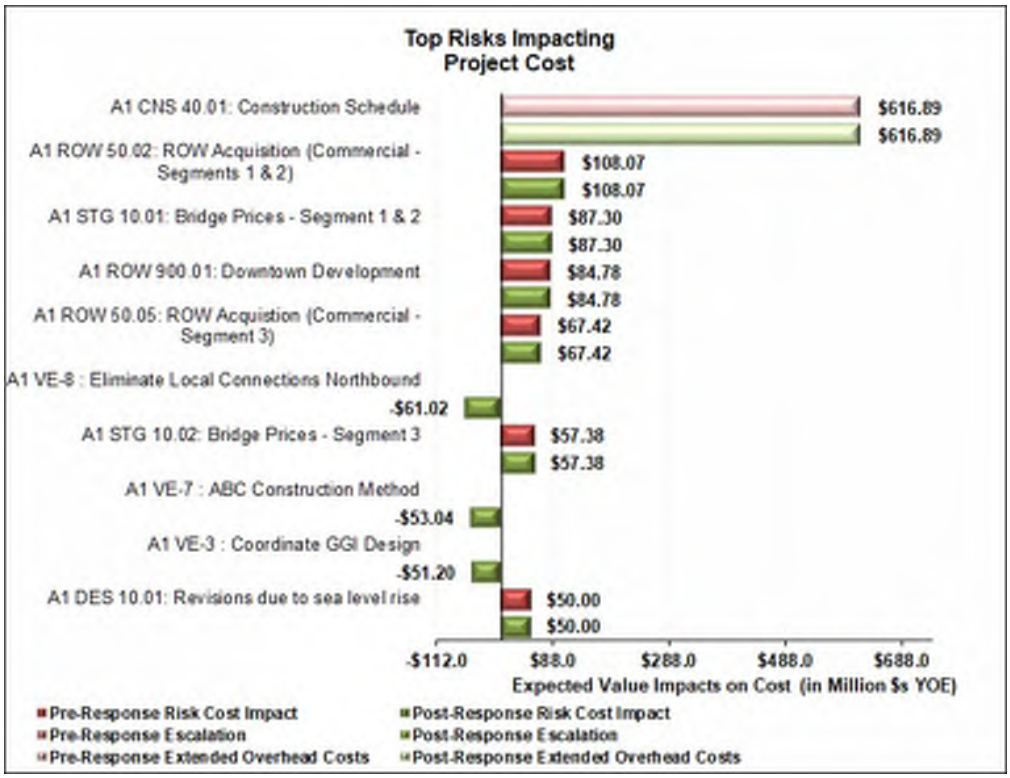
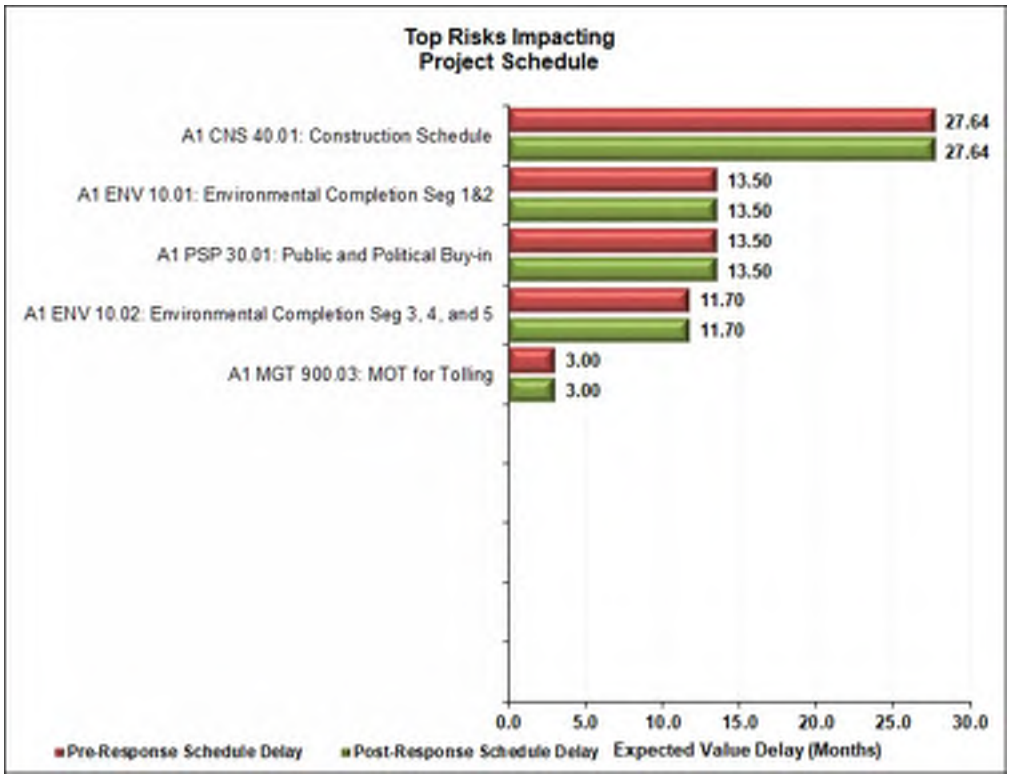


Figure 12 - Top Schedule Risks



3.1 Pre and Post-Response Results

The risk analysis results are given in the form of graphs showing the relationship between cost and the probability of not exceeding that cost. Risk-based analysis provides a distribution of probabilities that a project will not exceed an estimated dollar figure. Typically, agencies report the project risk-based estimation using the 70 percent confidence interval.

The extreme values, represented by the minimum and maximum on the graph, realistically have little chance to materialize. It is common and more realistic to evaluate the 80 percent confidence interval (the range from the 10 percentile to the 90 percentile).

Each graph indicates the best opinion of the cost ranges by the workshop participants at the time of the analysis.

The **red** S-curve in the figures below show the modeled results prior to risk mitigation and VE recommendation implementation. The **green** S-curve represents the cumulative probability distribution after adding in the VE opportunities and responding to the identified risk. This S-curve represents all possible values the costs could take, expressed in PDC dollars.

Figure 13: Overall Project Cost Risk Analysis Results Alternative 1

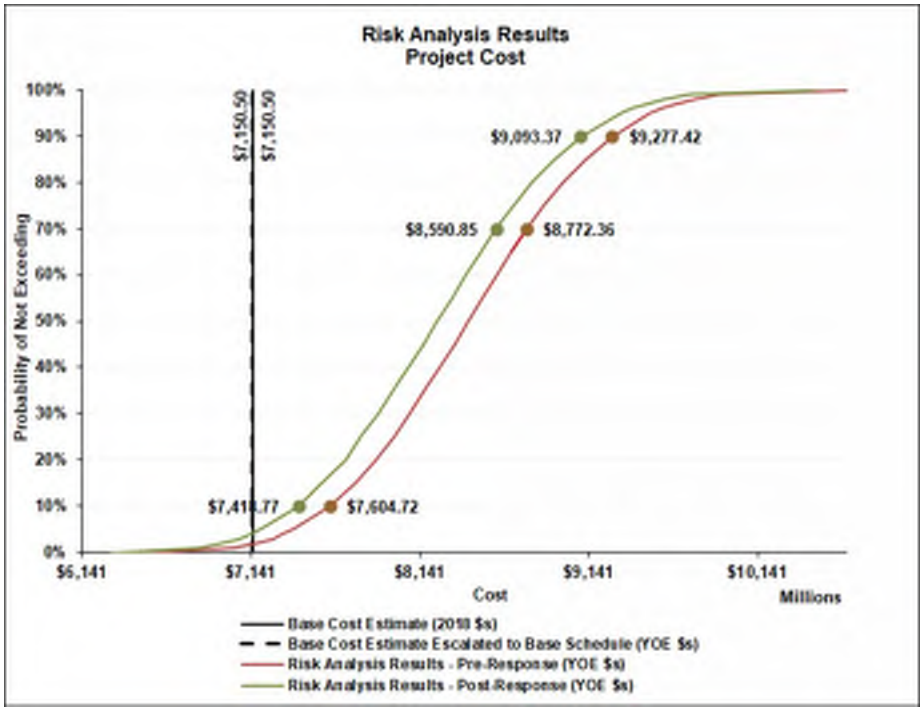
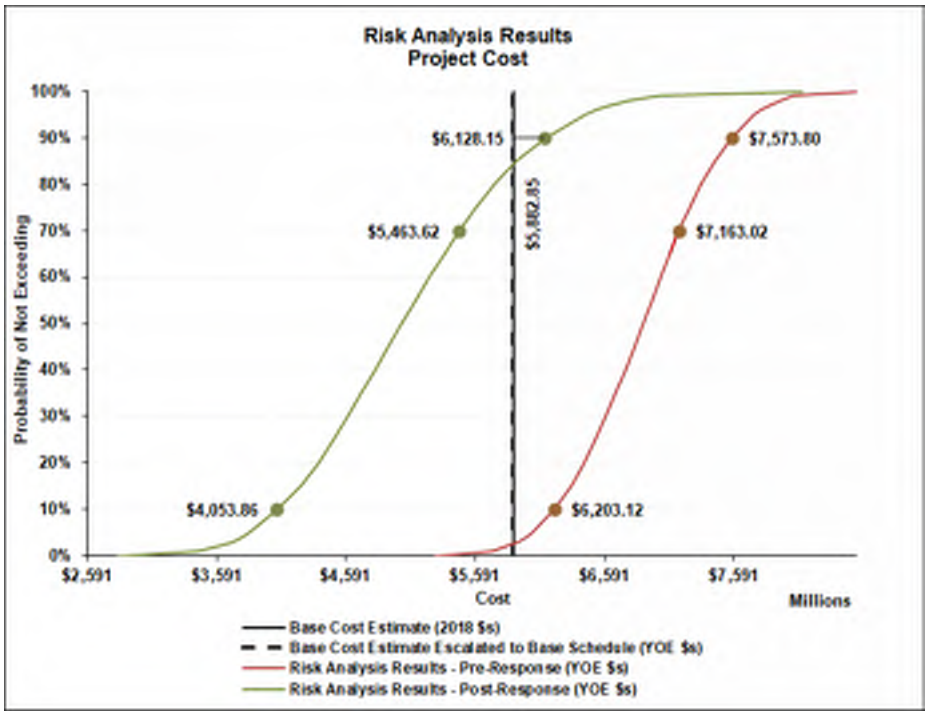


Figure 14: Overall Project Cost Risk Analysis Results Alternative 2



The gray vertical dashed line in Figure 13 and Figure 14 (short dashes) represents the base cost in 2018 dollars. The base cost is the project cost without any contingencies, or $7.15 billion for alternative 1 and 5.88 Billion for Alternative 2.

The **red** S-curve represents the cumulative probability distribution after adding in the risks (threats and opportunities) to the base costs and their uncertainties. This S-curve represents all possible values the costs could take, expressed in 2018 dollars.

The 80 percent confidence interval, described by the cost range between the 10th percentile and 90th percentile figures, reveals that the total project cost will fall between $7.42 billion and $7.60 billion for Alternative 1 and between $4.05 billion and 6.2 billion for Alternative 2. There is a 70 percent chance that the total project cost for the project will be equal to or less than $8.59 billion for Alternative 1 and $5.46 billion for Alternative 2.

Figure 15: Overall Project Construction Cost Risk Analysis Results – Alternative 1

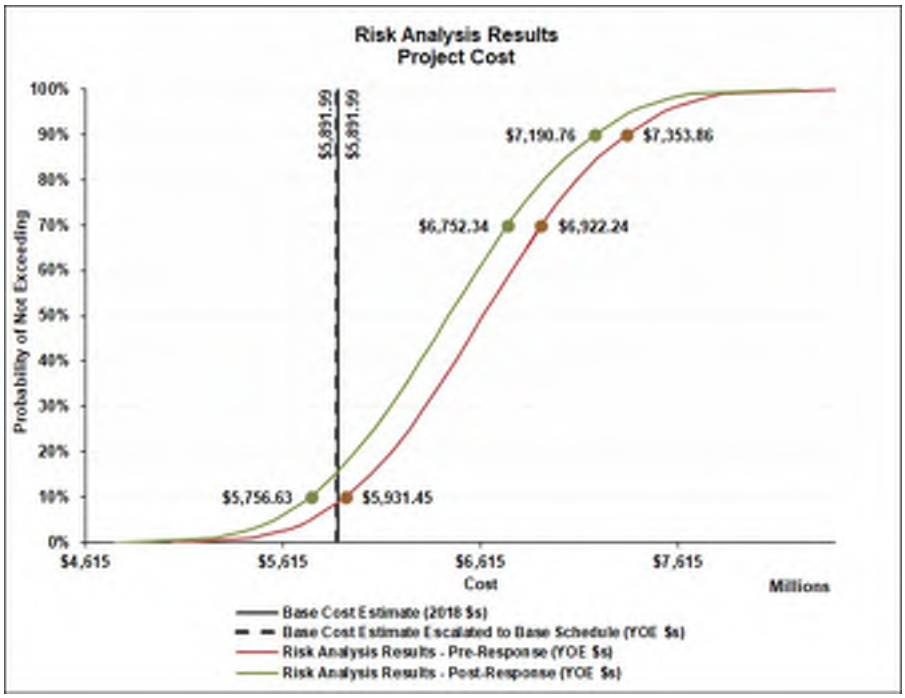
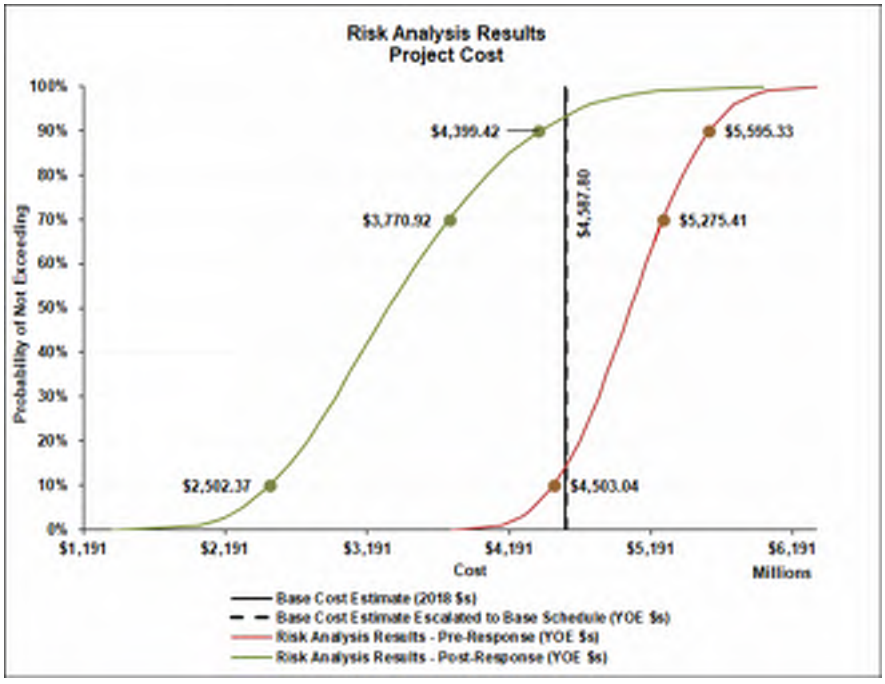


Figure 16: Overall Project Construction Cost Risk Analysis Results – Alternative 2



Looking at the construction costs only for the project in Figure 15 and Figure 16, the 80 percent confidence interval reveals that the total project cost will fall between $5.75 and

$7.19 billion for Alternative 1 and between $2.5 billion and $4.4 billion for Alternative 2. There is 70 percent chance that the total construction cost for the project will be equal to or less than $ 6.75 billion for Alternative 1 and $6.92 billion for Alternative 2.

Figure 17: Overall Project Completion Date Risk Analysis Results for Alternative 1

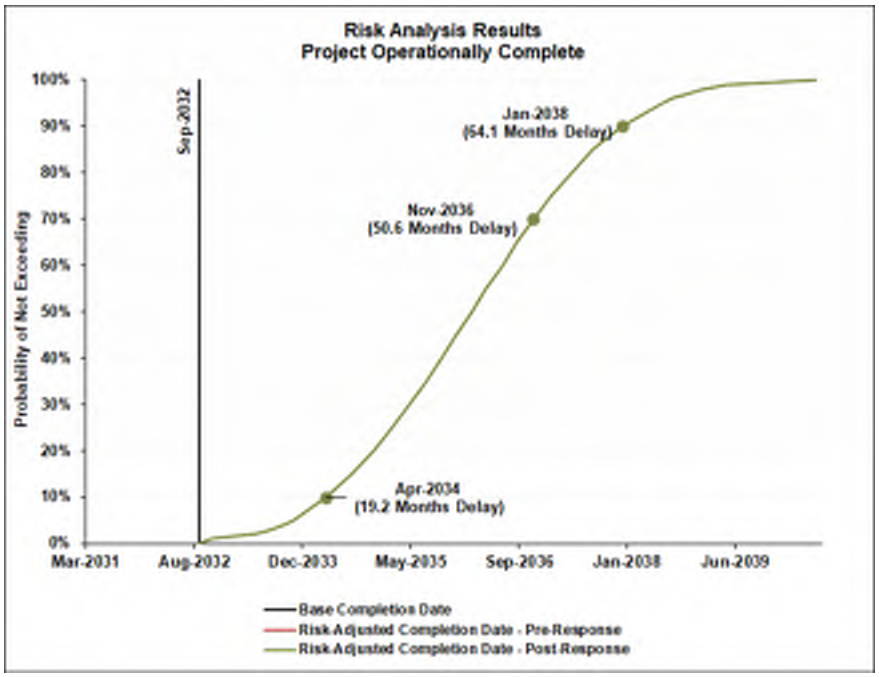
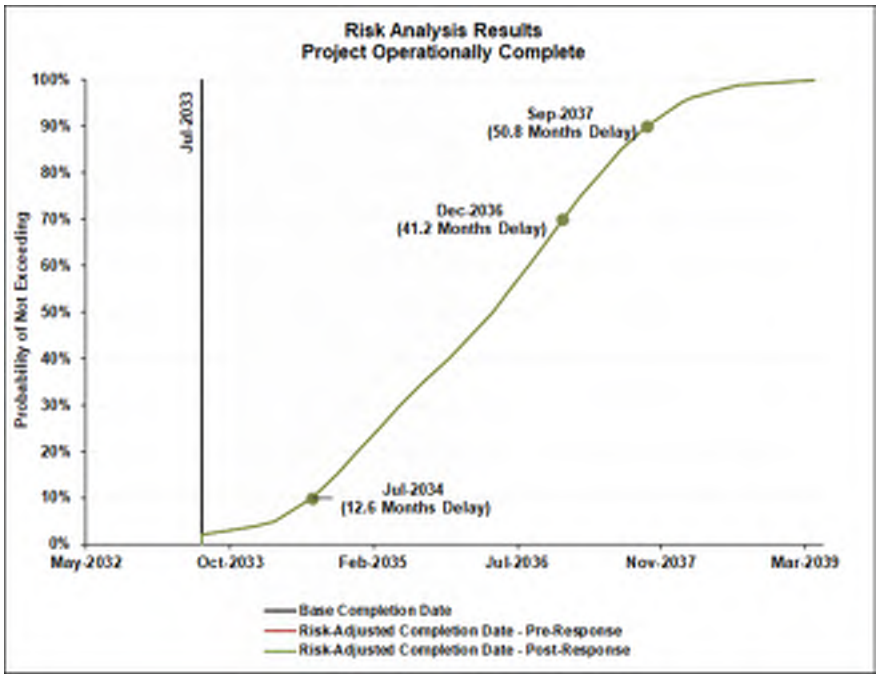


Figure 18: Overall Project Completion Date Risk Analysis Results for Alternative 2



As shown in Figure 17 and Figure 18, the baseline schedule for the entire corridor for alternative 1 had the project completed on September 2032 after overall 8 years of construction. The 80 percent confidence interval, described by the schedule range between the 10th percentile and 90th percentile figures, reveals that the completion of construction will fall between April 2034 and January 2038. For Alternative 2, the baseline schedule shows a completion date of July 2023 while the 80th percentile interval is between July 2034 and September 2037. There is 70 percent probability that the project will be completed by November 2036 for Alternative 1 and December 2036 for Alternative 2; both well after the baseline schedule. This is a result of schedule uncertainties and risk identified during the workshop.

3.2 Top Risk Factors

After the risks were identified, the CRAVE team focused on responding to those risks that were the most likely to happen or which held a significant impact if the risk event occurs. Using the information portrayed in the tornado diagrams, the highest risk elements received the most focus.

The pre- and post-mitigation tornado diagrams for the top risks impacting cost and schedule for the project are shown in the figuresFigure 19 (Alternative 1) andFigure 20 (Alternative 2). The dark red bar shows the direct cost impact caused by the risk. Risk documentation and response strategies were documented for each of the risks above and may be found in the Risk Data Sheets provided in Appendix E.

Figure 19: Top Cost Risks for Alternative 1

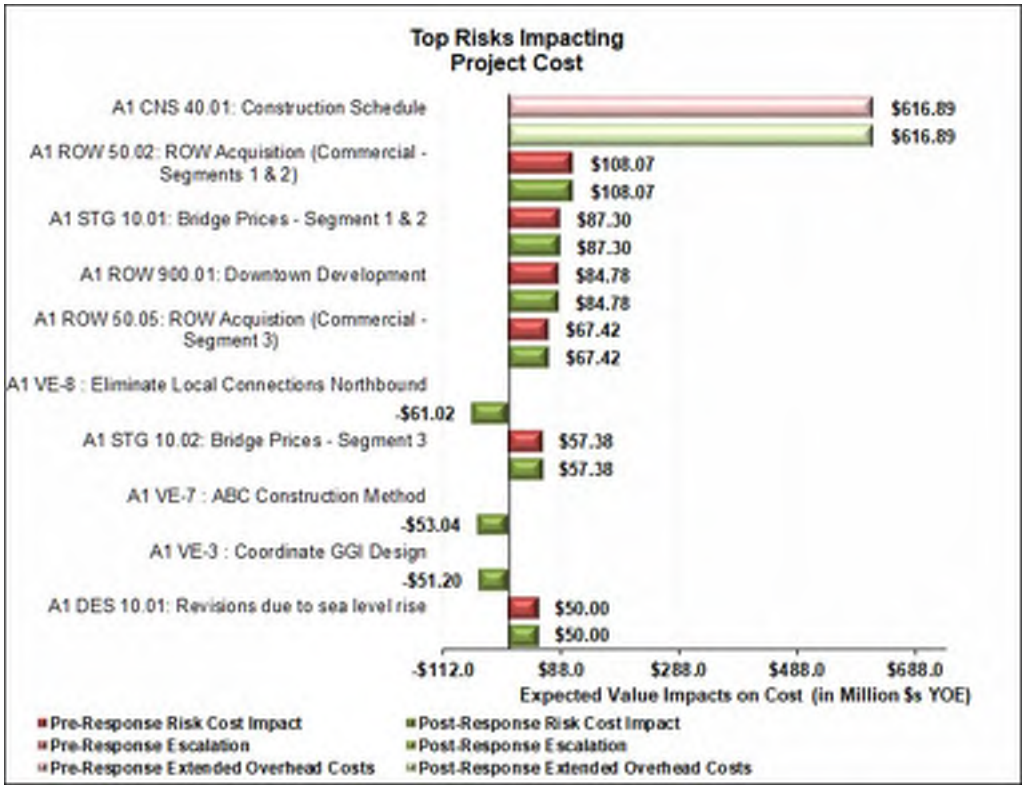
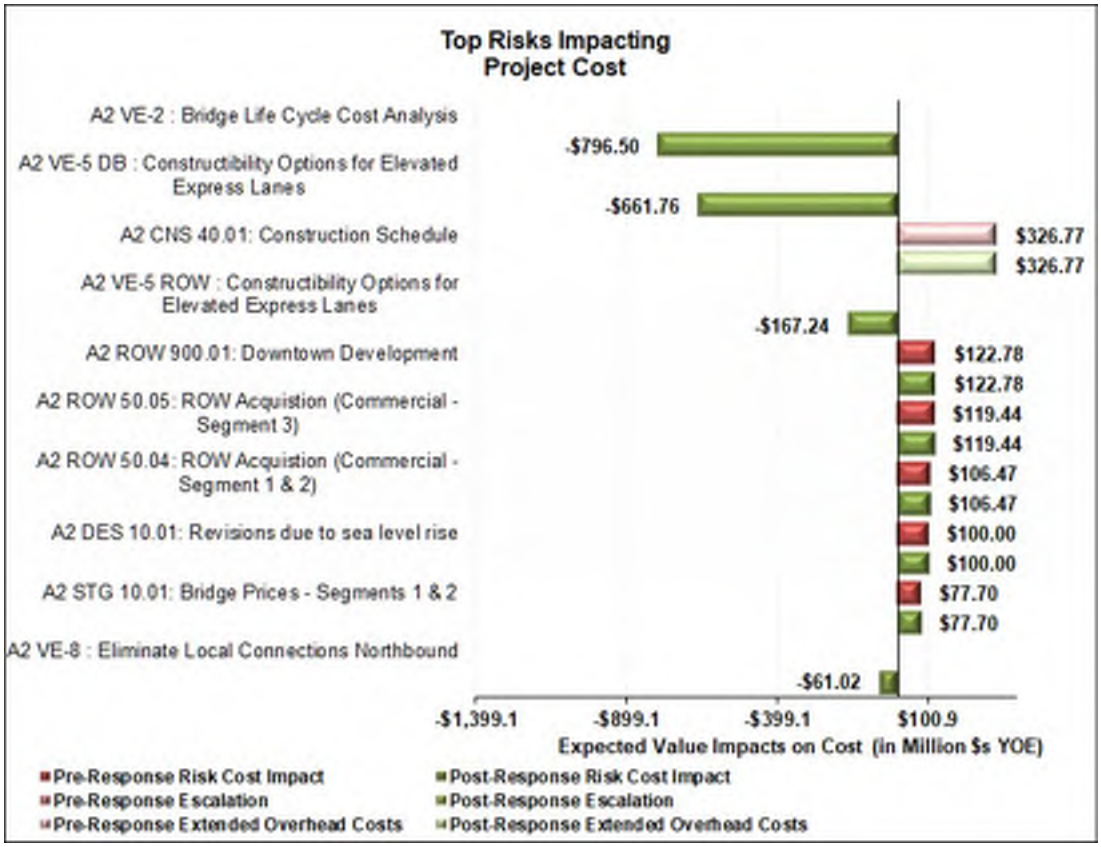


Figure 20: Top Cost Risks for Alternative 2



Similarly, the top risk schedule factors are shown in figuresFigure 21 (Alternative 1) andFigure 22 (Alternative 2).

Figure 21: Top Schedule Risks for Alternative 1

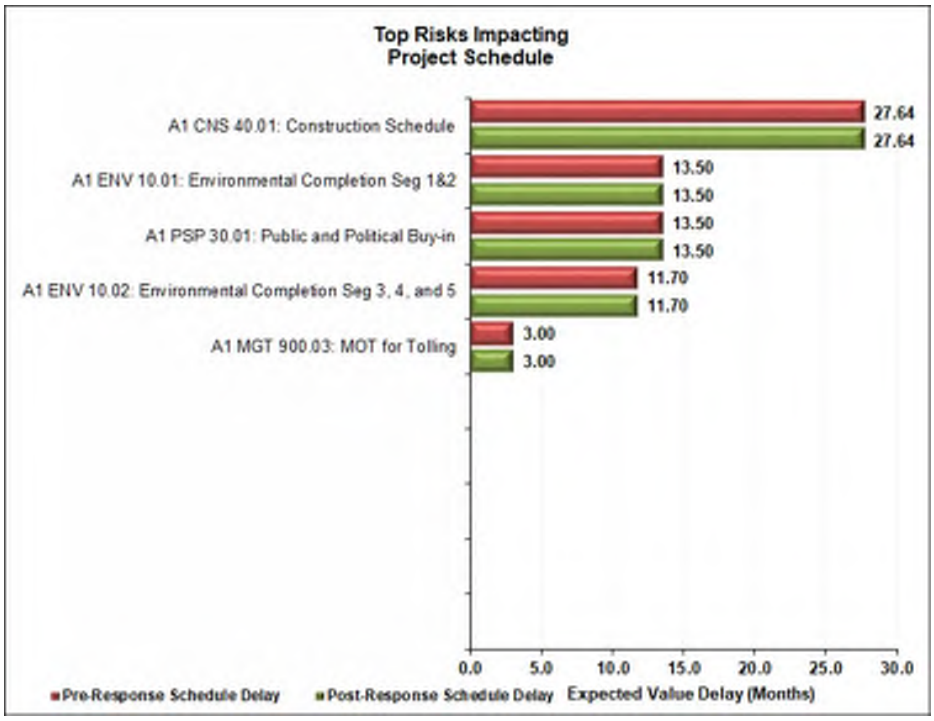


Figure 22: Top Schedule Risks for Alternative 2

For risks that did not have a VE recommendation, the CRAVE team leader and the project manager determined the appropriate risk response strategies for the remaining high risk areas.

The next step was to determine the appropriate risk response strategies for the identified high risk areas. Four risk response strategies, are considered when addressing threat risks. Those strategies are to avoid, accept, transfer, or mitigate the risk.

- **Avoiding** a risk may cost more money up front, but may prevent or reduce a more significant impact.
- **Accepting** a risk means that there is not much that can be done or relatively little benefit in addressing the risk.
- **Transferring** a risk allows for the risk owner to move the liability of the risk to another party that is better able to respond to the risk.
- **Mitigation** of a risk addresses risk by reducing the likelihood of the risk occurring or lessen the impact through proactive efforts.

Each of the risks that were identified had a unique response strategy developed to address it, as well as the identification of the risk owner. Identifying a risk response and risk owner, along with review intervals for the risk, a framework for a risk management plan is established. This allows proactive management of risk throughout the life of the project.

4 Creative Phase

During the speculation or creative phase of the VE Job Plan, the CRAVE team brainstormed ideas on how to achieve the various functions. These ideas were based on the available information given to them at the time of the study, taking into consideration the constraints and controlling decisions that were also defined for them. The ideas listed below coincide with each function being considered:

Table 16: Creative Idea List

Idea #	*Idea Description*
Function: Control Traffic	
1	Use Transportation system management and operations (TSM&O) strategies along the corridor and contributing local roads to optimize volumes on the interstate
2	Build TSM&O before construction so it can be used during construction
3	Build temporary TSM&O specifically for construction
4	Use Waze and Google/Apple maps to strategize more efficient travel time (reverse toll)
5	Use adaptive signal technology at intersections
6	Identify strategies to remove traffic from I-95 by providing voluntary incentives/disincentives
7	Synchronize timing of local roads to improve circulation and synchronize with I-95 operations, including replacement of signal controllers
Function: Create Space	
8	Optimize footprint by maximizing use of exceptions and variations
9	Acquire right-of-way to maintain traffic
10	Reduce number of lanes required to maintain traffic
11	Reduce shoulder width to a minimum during construction (provide emergency pull-outs)
12	Early identification of staging areas
Function: Deliver Project	
13	Use P3 procurement process
14	Dedicate a construction corridor to the contractor
15	Use reversible lanes during construction
16	Identify detours to divert traffic with specific origin and destination
17	Conduct a life cycle cost analysis to all bridges and replace those that only make sense to replace

Table 16: Creative Idea List

Idea #	Idea Description
Function: Improve Access	
18	Have the planning and design teams get together to discuss and coordinate the GGI design to minimize throw-away
19	Coordinate with SR 836/I-395 design-build team to minimize potential throw-away with the ultimate configuration of I-95
Function: Increase Capacity	
20	Make all express lanes general purpose lanes
21	Convert SR 7/US 441 into a limited access facility (including tolling)
22	Build tunnel instead of a drawbridge on Brickell Avenue
23	Reduce design speed on ramps to minimum requirement as practical
24	Build a 3-lane reversible viaduct on US 441 as a permanent north/south solution and use as a detour on I-95 during construction
25	Build an alternative that is a hybrid of Alternatives 1 and 2 with a 3-lane viaduct on the outside (segmental box with a center column)
26	Drop express lanes south of I-395 (make them all general purpose lanes)
Function: Increase Transit Access	
27	Reduce headway of tri-rail traffic to accommodate additional ridership
28	Extend metro rail into Broward County
29	Increase metro rail routes
30	Incorporate BRT to express lanes (performance guarantee)
31	Incorporate BRT in shoulders on local roads
32	Connect metro rail to GGI multimodal center
Function: Increase Transit Ridership	
33	Create DOT-owned transit section
34	Modernize metro rail
35	Modernize metro rail stations (a/c)
36	Add Park & Ride lots
37	Modernize FDOT's website for ride share/transit options
38	Partner with private industries/companies to incentivize transit use
39	Grant transit signal priority (TSP) to buses to improve transit time
40	Reduce cost of tri-rail to promote ridership during construction (tri-rail and Bright Line)
41	Use Bright Line as an alternative express method of transportation during construction

Table 16: Creative Idea List

Idea #	Idea Description
Function: Inform Public	
42	Extraordinary public outreach to encourage alternative routes/transit/work from home during construction
Function: Reduce Conflicts	
43	Reconsider (validate) reversible lanes
44	Create a super express lane (downtown to Broward)
45	Create a reversible super express lane
46	New system turbine interchange at SR 836 (make it a VE change proposal)
47	New system interchange at GGI
48	Eliminate local connection from 25th Street to 8th Street
49	Eliminate local connection from 3rd Court to 8th Avenue
50	Improve Brickell Avenue and South Miami Avenue
51	Reduce number of connectors to downtown (combine movements)
52	Tie in express and general purpose ramps to consolidate distributors
53	Eliminate general purpose lanes into downtown (make express lanes only); improve local access network to downtown
54	Improve local roadways to alleviate traffic off of I-95
55	Restrict bridge openings
56	Coordinate with Port Authority to manage ship activity during the night
57	Keep main lines at 3rd and 4th level and ramps at 5th and 6th level on express lanes at I-195 and I-395 (put ramps on top of express lanes instead of the other way around)
58	Provide separate connection between I-395/SR 836 and downtown distributor to allow local roadways to connect into I-95 sooner
Function: Restrict Traffic	
59	Coordinate government office hours with nonpeak hours (stagger hours)
Function: Separate Traffic	
60	Create a separate corridor for express purposes
61	Create a new corridor
62	Make Brickell Avenue and South Miami Avenue one way pairs
63	Put express lanes on separate corridor (e.g., 27th Avenue)
64	Build express lane over Biscayne Bay
65	Provide local bypass for local movements and don't mix with I-95 traffic
66	Use ABC (accelerated bridge construction)
67	Construct segmental bridges (top-down construction)

Table 16: Creative Idea List

Idea #	Idea Description
68	Use local network to distribute traffic between express lanes and general use lanes (and south and north) to reduce redundant movements
69	Use one-way pairs in downtown
70	Put all express lanes and general purpose lanes (northbound/southbound) on same level
71	Convert typical section to split by direction, not by the type of traffic (Alternative 1 only)
72	Flip the general purpose lanes and express lanes (GP on top; express on bottom) (Alternative 1 only)
73	Maintain third level at Gratigny; make flyovers fourth level
74	Need to consider overhead signs with Alternative 1
75	Create 3D rendering of both alternatives of Segment 1
Function: Treat Stormwater	
76	Include tube settlers (inlet insert)

5 Evaluation Phase

Although each project is different, the evaluation process for each CRAVE effort can be thought of in its simplest form as a way of combining, evaluating, and narrowing ideas until the CRAVE team agrees on the proposals to be forwarded.

Taking into consideration the constraints and controlling decisions, the team discussed each idea and documented the advantages and disadvantages. Each idea was then carefully evaluated with the CRAVE team reaching consensus on the overall rating of the idea (zero through three). Ideas scoring 3 were developed further; those that were considered to be equivalent to the baseline (rated two) were documented as design considerations; and low-rated ones (one or lower) were dropped from further consideration; however, the team provided a short description and justification to support the low rating. The rating values are shown below:

3 = Good Opportunity

2 = Design Consideration (comparable to project team's approach)

1 = Major Value Degradation

0 = Fatal Flaw (unacceptable impact or doesn't meet the project purpose and need)

= Advanced as recommendation

= Forwarded as design consideration

= Dropped from future consideration

5.1 Idea Evaluation Form

Function: Control Traffic

Idea No.	Description	
1	Use Transportation system management and operations (TSM&O) strategies along the corridor and contributing local roads to optimize volumes on the interstate	
	Advantages	**Disadvantages**
	• Manages traffic • Improves queuing off and on of interstate • Provides information to traveling public	• Slight increase in cost • Increased maintenance (more complex) • Inoperability concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 1, 2, 3, 5, and 7; this is a current policy of the district. They are actively looking into TSM&O on the corridor. Bring forward as a recommendation
Idea No.	**Description**	
2	Build TSM&O before construction so it can be used during construction	
	Advantages	**Disadvantages**
	• Possibility of reducing GP lanes during construction	
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 1, 2, 3, 5, and 7. Bring forward as a recommendation
Idea No.	**Description**	
3	Build temporary TSM&O specifically for construction	
	Advantages	**Disadvantages**
	• Possibility of reducing GP lanes during construction	
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 1, 2, 3, 5, and 7. Bring forward as a recommendation

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
4	Use Waze and Google/Apple maps to strategize more efficient travel time (reverse toll)	
	Advantages	**Disadvantages**
	• Enhanced and early communication with the traveling public • Reduces demand • Optimizes network	• Difficult sell to turnpike • May not be feasible
	Rating:	***Justification/Comments/Disposition:***
	2	Reverse tolling may not be feasible
Idea No.	**Description**	
5	Use adaptive signal technology at intersections	
	Advantages	**Disadvantages**
	• Manages traffic • Improves queuing off and on of interstate • Provides information to traveling public	• Slight increase in cost • Increased maintenance (more complex) • Inoperability concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 1, 2, 3, 5, and 7. Bring forward as a recommendation
Idea No.	**Description**	
6	Identify strategies to remove traffic from I-95 by providing voluntary incentives/disincentives	
	Advantages	**Disadvantages**
	• Enhanced and early communication with the traveling public • Reduces demand • Optimizes network	• May not be feasible
	Rating:	***Justification/Comments/Disposition:***
	1	Difficult to implement

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
7	Synchronize timing of local roads to improve circulation and synchronize with I-95 operations, including replacement of signal controllers	
	Advantages	**Disadvantages**
	• Manages traffic • Improves queuing off and on of interstate • Provides information to traveling public	• Slight increase in cost • Increased maintenance (more complex) • Inoperability concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 1, 2, 3, 5, and 7; should be done network-wide. Bring forward as a recommendation

Function: Create Space

Idea No.	Description	
8	Optimize footprint by maximizing use of exceptions and variations	
	Advantages	**Disadvantages**
	• Reduces footprint • Reduces right-of-way impact • Reduces impervious surfaces • Reduces structure sizes • Reduces cost	• Reduces performance and level of service • Driver perception/comfort • May not be acceptable to FHWA
	Rating:	***Justification/Comments/Disposition:***
	2	Evaluate during design

Ranking Scale: 3 = Good Opportunity; 2 = Good Idea for Design Team to Pursue; 1 = Poor Opportunity; 0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
9	Acquire right-of-way to maintain traffic	
	Advantages	**Disadvantages**
	• Makes the project constructible • May eliminate double-stacking of structures in places • Reduces complexity of MOT	• May be difficult to prove necessity • Adds time to the project due to procurement
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 9 and 25. Bring forward as a recommendation
Idea No.	**Description**	
10	Reduce number of lanes required to maintain traffic	
	Advantages	**Disadvantages**
	• Makes the project constructible • Less right-of-way for MOT	• LOS during construction • Opposition with public • Would require improvements on adjacent roadways
	Rating:	***Justification/Comments/Disposition:***
	2	Let design team establish parameters for lane closures; combine with ID 11
Idea No.	**Description**	
11	Reduce shoulder width to a minimum during construction (provide emergency pull-outs)	
	Advantages	**Disadvantages**
	• Makes the project constructible • Less right-of-way for MOT	• LOS during construction • Opposition with public • Would require enhancements to emergency response providers
	Rating:	***Justification/Comments/Disposition:***
	2	Let design team establish parameters; combine with ID 10

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
12	Early identification of staging areas	
	Advantages	**Disadvantages**
	• Preserves the area • Reduces the risk for contractors (predicable/biddable) • Could be used for other purposes (Park & Ride, drainage, BRT)	• Tying contractor to areas that may not be ideal in location or size
	Rating:	***Justification/Comments/Disposition:***
	2	Don't have enough information re: phasing, structures, to identify staging

Function: Deliver Project

Idea No.	Description	
13	Use P3 procurement process	
	Advantages	**Disadvantages**
	• Faster construction • Cash flow benefits • Easier MOT • Shorter project duration • Easier to manage	• Less departmental control during design • Contractor availability
	Rating:	***Justification/Comments/Disposition:***
	3	Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
14	Dedicate a construction corridor to the contractor	
	Advantages	**Disadvantages**
	• Easier to construct • May save time • Reduces impacts to local roadways • Removes construction vehicles from the roadway • May cost less for construction	• Will require right-of-way for the ultimate build • Difficult to get the whole corridor • Tying contractor to areas that may not be ideal in location or size • Applies only to Alternative 2
	Rating:	***Justification/Comments/Disposition:***
	2	May be combined with Alternative 2 or hybrid recommendations.
Idea No.	**Description**	
15	Use reversible lanes during construction	
	Advantages	**Disadvantages**
	• Reduces footprint during construction • Gives contractor larger work zone • Makes project constructible	• Tolling concerns (could require additional tolling equipment) • Difficult to implement • Driver expectation • Increased cost (moving barrier)
	Rating:	***Justification/Comments/Disposition:***
	2	Recommend the design team look into this
Idea No.	**Description**	
16	Identify detours to divert traffic with specific origin and destination	
	Advantages	**Disadvantages**
	• Reduces risk to contractor • Enables early R/W acquisition	• Too early in the process
	Rating:	***Justification/Comments/Disposition:***
	2	Let design team identify alternative routes

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
17	Conduct a life cycle cost analysis to all bridges and replace those that only make sense to replace	
	Advantages	**Disadvantages**
	• Reduces costs • Reduces project construction/duration • Makes project more constructible	• May need to redeck the bridges • Pushing replacement into the future (may cost more) • Public perception • Life cycle is shorter
	Rating:	***Justification/Comments/Disposition:***
	3	Bring forward as a recommendation.

Function: Improve Access

Idea No.	Description	
18	Have the planning and design teams get together to discuss and coordinate the GGI design to minimize throw-away	
	Advantages	**Disadvantages**
	• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 18 and 47. Include TSM&O in the coordination meetings. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity; 2 = Good Idea for Design Team to Pursue; 1 = Poor Opportunity; 0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
19	Coordinate with SR 836/I-395 design-build team to minimize potential throw-away with the ultimate configuration of I-95	
	Advantages	**Disadvantages**
	• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 19, 57, and 70. Include TSM&O in the coordination meetings and suggest design team be brought in to coordinate.

Function: Increase Capacity

Idea No.	Description	
20	Make all express lanes general purpose lanes	
	Advantages	**Disadvantages**
		• FHWA unlikely to approve
	Rating:	***Justification/Comments/Disposition:***
	0	FHWA unlikely to approve
Idea No.	**Description**	
21	Convert SR 7/US 441 into a limited access facility (including tolling)	
	Advantages	**Disadvantages**
		• Public acceptance • Local agency acceptance
	Rating:	***Justification/Comments/Disposition:***
	1	Previously dismissed by planning team

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
22	Build tunnel instead of a drawbridge on Brickell Avenue	
	Advantages	**Disadvantages**
		• Out of scope of VE
	Rating:	***Justification/Comments/Disposition:***
	1	Out of scope

Idea No.	Description	
23	Reduce design speed on ramps to minimum requirement as practical	
	Advantages	**Disadvantages**
	• Reduces footprint • More flexible on profile • May reduce ramp width • Reduces cost	• Increased maintenance
	Rating:	***Justification/Comments/Disposition:***
	1	Determined it was not a controlled speed; design speed required per the current geometry

Idea No.	Description	
24	Build a 3-lane reversible viaduct on US 441 as a permanent north/south solution and use as a detour on I-95 during construction	
	Advantages	**Disadvantages**
		• Community outcry • Parallel effort to implement complete street concepts. • Opposite to current vision for the corridor.
	Rating:	***Justification/Comments/Disposition:***
	1	Community opposition; opposite to current vision for the corridor

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
25	Build an alternative that is a hybrid of Alternatives 1 and 2 with a 3-lane viaduct on the outside (segmental box with a center column)	
	Advantages	**Disadvantages**
	• Optimizes constructibility • Improves MOT • Salvages existing structures • Salvages existing roadway • Minimizes throw-away • Can maintain express lanes during construction • Reduces foundation footprint • Reduces overhead construction • Improves direct connects • Lower level bridges over I-395	• Moves bridge closer to residences and businesses • Increases noise impacts • More conflicts with ramp traffic
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 9 and 25. Bring forward as a recommendation.

Idea No.	Description	
26	Drop express lanes south of I-395 (make them all general purpose lanes)	
	Advantages	**Disadvantages**
		• FHWA unlikely to approve
	Rating:	***Justification/Comments/Disposition:***
	0	Previously dismissed by planning team

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Function: Increase Transit Access

Idea No.	Description	
27	Reduce headway of tri-rail traffic to accommodate additional ridership	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. How much traffic can we reduce off of I-95 if a robust transit alternative is developed? Bring forward as a recommendation.
Idea No.	**Description**	
28	Extend metro rail into Broward County	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
29	Increase metro rail routes	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. Bring forward as a recommendation.

Idea No.	Description	
30	Incorporate BRT to express lanes (performance guarantee)	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
31	Incorporate BRT in shoulders on local roads	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. Bring forward as a recommendation.

Idea No.	Description	
32	Connect metro rail to GGI multimodal center	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 27 through 32. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Function: Increase Transit Ridership

Idea No.	Description	
33	Create DOT-owned transit section	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward

Idea No.	Description	
34	Modernize metro rail	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
35	Modernize metro rail stations (a/c)	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward
Idea No.	**Description**	
36	Add Park & Ride lots	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
37	Modernize FDOT's website for ride share/transit options	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward
Idea No.	**Description**	
38	Partner with private industries/companies to incentivize transit use	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 33 through 38. Create design suggestion for moving forward

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
39	Grant transit signal priority (TSP) to buses to improve transit time	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 39 through 41. Create design suggestion for moving forward
Idea No.	**Description**	
40	Reduce cost of tri-rail to promote ridership during construction (tri-rail and Bright Line)	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 39 through 41. Create design suggestion for moving forward

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
41	Use Bright Line as an alternative express method of transportation during construction	
	Advantages	**Disadvantages**
	• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve travel time for the user	• Requires coordination and buy-in with other agencies • Public may not embrace transit • "Last mile" concerns
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 39 through 41. Create design suggestion for moving forward

Function: Inform Public

Idea No.	Description	
42	Extraordinary public outreach to encourage alternative routes/transit/work from home during construction	
	Advantages	**Disadvantages**
	• Alerts the public • Provides information early • Gain acceptance	• Labor intensive • Increases cost
	Rating:	***Justification/Comments/Disposition:***
	3	Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Function: Reduce Conflicts

Idea No.	Description	
43	Reconsider (validate) reversible lanes	
	Advantages	**Disadvantages**
	• Reduces footprint • Reduces right-of-way impact • Reduces impervious surfaces • Reduces structure sizes • Reduces cost	• Too many access points • Already turned down once
	Rating:	***Justification/Comments/Disposition:***
	2	Revisit traffic numbers and validate those are accurate. Include recommendation with hybrid concepts
Idea No.	**Description**	
44	Create a super express lane (downtown to Broward)	
	Advantages	**Disadvantages**
	• Provides a direct link	• May not provide benefit • Variable tolling will work just as well as a super express lane
	Rating:	***Justification/Comments/Disposition:***
	2	Let Planning team run a simulation model to prove concept
Idea No.	**Description**	
45	Create a reversible super express lane	
	Advantages	**Disadvantages**
	• Provides a direct link	• May not provide benefit • Variable tolling will work just as well as a super express lane
	Rating:	***Justification/Comments/Disposition:***
	2	Let Planning team run a simulation model to prove concept

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
46	New system turbine interchange at SR 836 (make it a VE change proposal)	
	Advantages	**Disadvantages**
		• Not feasible; already in letting/construction
	Rating:	***Justification/Comments/Disposition:***
	1	Not feasible; already in letting/construction
Idea No.	**Description**	
47	New system interchange at GGI	
	Advantages	**Disadvantages**
	• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 18 and 47. Include TSM&O in the coordination meetings. Bring forward as a recommendation.
Idea No.	**Description**	
48	Eliminate local connection from 25th Street to 8th Street	
	Advantages	**Disadvantages**
	• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion
	Rating:	***Justification/Comments/Disposition:***
	3	Combines Ideas 48 and 51. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
49	Eliminate local connection from 3rd Court to 8th Avenue	
	Advantages	**Disadvantages**
	• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion
	Rating:	***Justification/Comments/Disposition:***
	3	Combine with idea 51. Bring forward as a recommendation.
Idea No.	**Description**	
50	Improve Brickell Avenue and South Miami Avenue	
	Advantages	**Disadvantages**
	• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion
	Rating:	***Justification/Comments/Disposition:***
	3	Combines Ideas 50, 54, and 69. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
51	Reduce number of connectors to downtown (combine movements)	
	Advantages	**Disadvantages**
	• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion
	Rating:	***Justification/Comments/Disposition:***
	3	Combine ideas 49 and 51. Bring forward as a recommendation.
Idea No.	**Description**	
52	Tie in express and general purpose ramps to consolidate distributors	
	Advantages	**Disadvantages**
	• Simplifies connection to downtown connectors • Reduces the number of ramps • Simplifies signing • Reduces driver confusion	• Removes existing movements • Public acceptance • May increase local congestion • May increase travel times
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 52, 53, 58, and 68. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity; 2 = Good Idea for Design Team to Pursue; 1 = Poor Opportunity; 0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
53	Eliminate general purpose lanes into downtown (make express lanes only); improve local access network to downtown	
	Advantages	**Disadvantages**
	• Simplifies connection to downtown connectors • Reduces the number of ramps • Simplifies signing • Reduces driver confusion	• Removes existing movements • Public acceptance • May increase local congestion • May increase travel times
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 52, 53, 58, and 68. Bring forward as a recommendation.
Idea No.	**Description**	
54	Improve local roadways to alleviate traffic off of I-95	
	Advantages	**Disadvantages**
	• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion
	Rating:	***Justification/Comments/Disposition:***
	3	Combines Ideas 50, 54, and 69. Bring forward as a recommendation.
Idea No.	**Description**	
55	Restrict bridge openings	
	Advantages	**Disadvantages**
	• Will improve peak hour operations • Will improve traffic during construction	• Out of scope of VE
	Rating:	***Justification/Comments/Disposition:***
	2	Planning/PD&E team investigate opportunities with the Port Authority and USCG

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
56	Coordinate with Port Authority to manage ship activity during the night	
	Advantages	**Disadvantages**
	• Will improve peak hour operations • Will improve traffic during construction	• Out of scope of VE
	Rating:	***Justification/Comments/Disposition:***
	2	Planning/PD&E team investigate opportunities with the Port Authority and USCG
Idea No.	**Description**	
57	Keep main lines at 3rd and 4th level and ramps at 5th and 6th level on express lanes at I-195 and I-395 (put ramps on top of express lanes instead of the other way around)	
	Advantages	**Disadvantages**
	• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 19, 57, and 70. Include TSM&O in the coordination meetings and suggest design team be brought in to coordinate.
Idea No.	**Description**	
58	Provide separate connection between I-395/SR 836 and downtown distributor to allow local roadways to connect into I-95 sooner	
	Advantages	**Disadvantages**
	• Would remove CDs along the system • Reduces conflicts • Creates a direct link between downtown connector and SR 836 • Reduces footprint • Simplifies construction • Simplifies MOT	•
	Rating:	***Justification/Comments/Disposition:***
	3	Combine ideas 52, 53, 58, and 68. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity; 2 = Good Idea for Design Team to Pursue; 1 = Poor Opportunity; 0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Function: Restrict Traffic

Idea No.	Description	
59	Coordinate government office hours with nonpeak hours (stagger hours)	
	Advantages	**Disadvantages**
		• Out of scope of VE
	Rating:	***Justification/Comments/Disposition:***
	1	Out of scope

Function: Separate Traffic

Idea No.	Description	
60	Create a separate corridor for express purposes	
	Advantages	**Disadvantages**
		• Cost prohibitive • Major environmental impacts • Public outcry
	Rating:	***Justification/Comments/Disposition:***
	1	Major environmental impacts
Idea No.	**Description**	
61	Create a new corridor	
	Advantages	**Disadvantages**
		• Cost prohibitive • Major environmental impacts • Public outcry
	Rating:	***Justification/Comments/Disposition:***
	1	Major environmental impacts

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
62	Make Brickell Avenue and South Miami Avenue one way pairs	
	Advantages	**Disadvantages**
		• Public opposition
	Rating:	***Justification/Comments/Disposition:***
	1	Unacceptable to the public
Idea No.	**Description**	
63	Put express lanes on separate corridor (e.g., 27th Avenue)	
	Advantages	**Disadvantages**
		• Too far away
	Rating:	***Justification/Comments/Disposition:***
	0	Combine Ideas 60, 61, and 64. Bring forward as a recommendation.
Idea No.	**Description**	
64	Build express lane over Biscayne Bay	
	Advantages	**Disadvantages**
		• Cost prohibitive • Major environmental impacts • Public outcry
	Rating:	***Justification/Comments/Disposition:***
	1	Major environmental impacts

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
65	Provide local bypass for local movements and don't mix with I-95 traffic	
	Advantages	**Disadvantages**
	• Simplifies connection to downtown connectors • Reduces the number of ramps • Simplifies signing • Reduces driver confusion	• Removes existing movements • Public acceptance • May increase local congestion • May increase travel times
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 52, 53, and 65. Bring forward as a recommendation.
Idea No.	**Description**	
66	Use ABC (accelerated bridge construction)	
	Advantages	**Disadvantages**
	• Faster construction • May cost less for MOT • Easier to construct • Less disruptions to traffic	• May cost more for structures
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 66 and 67. Bring forward as a recommendation.
Idea No.	**Description**	
67	Construct segmental bridges (top-down construction)	
	Advantages	**Disadvantages**
	• Faster construction • May cost less for MOT • Easier to construct • Less disruptions to traffic	• May cost more for structures
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 66 and 67. Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
68	Use local network to distribute traffic between express lanes and general use lanes (and south and north) to reduce redundant movements	
	Advantages	**Disadvantages**
	• May reduce traffic off of I-95 • Improves local traffic connection • May attract more business	• DOT does not own the roads; may not have jurisdiction • Businesses won't like • Increases reconstruction costs
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 52, 53, 58, and 68. Bring forward as a recommendation.
Idea No.	**Description**	
69	Use one-way pairs in downtown	
	Advantages	**Disadvantages**
	• May reduce traffic off of I-95 • Improves local traffic connection • May attract more business	• DOT does not own the roads; may not have jurisdiction • Businesses won't like • Increases reconstruction costs
	Rating:	***Justification/Comments/Disposition:***
	3	Combine Ideas 50, 54, 69. Bring forward as a recommendation.
Idea No.	**Description**	
70	Put all express lanes and general purpose lanes (northbound/southbound) on same level	
	Advantages	**Disadvantages**
	• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments
	Rating:	***Justification/Comments/Disposition:***
	2	Combine Ideas 19, 57, and 70. Include TSM&O in the coordination meetings and suggest design team be brought in to coordinate.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
71	Convert typical section to split by direction, not by the type of traffic (Alternative 1 only)	
	Advantages	**Disadvantages**
	• May reduce footprint • Can have buffer separator vs. barrier wall	• Requires separate gantry equipment • Local connections with higher roadway
	Rating:	***Justification/Comments/Disposition:***
	2	Design suggestion for planning and design team moving forward
Idea No.	**Description**	
72	Flip the general purpose lanes and express lanes (GP on top; express on bottom) (Alternative 1 only)	
	Advantages	**Disadvantages**
	• May reduce footprint • Express lanes would require fewer signs	• Complicates connections to local roadways • More difficult to construct • More structures
	Rating:	***Justification/Comments/Disposition:***
	2	Design suggestion for planning and design team moving forward
Idea No.	**Description**	
73	Maintain third level at Gratigny; make flyovers fourth level	
	Advantages	**Disadvantages**
	• Less structure • Reduces structure height • Less cost	• Requires coordination with MDX • Interim touch-down points will be very high • Requires pre-planning for future compatibility
	Rating:	***Justification/Comments/Disposition:***
	3	Bring forward as a recommendation.

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

Idea No.	Description	
74	Need to consider overhead signs with Alternative 1	
	Advantages	**Disadvantages**
	• Meets design criteria / standard	•
	Rating:	***Justification/Comments/Disposition:***
	2	Determine appropriate vertical clearance

Idea No.	Description	
75	Create 3D rendering of both alternatives of Segment 1	
	Advantages	**Disadvantages**
	• Provides construction phasing and constructability • Improves constructability • Improves quantity calculations	• Increased design cost
	Rating:	***Justification/Comments/Disposition:***
	3	Brought forward as a recommendation

Function: Treat Stormwater

Idea No.	Description	
76	Include tube settlers (inlet insert)	
	Advantages	**Disadvantages**
	• Improves French drains life expectancy	• Increased maintenance
	Rating:	***Justification/Comments/Disposition:***
	2	Let the PD&E team determine the most appropriate drainage scheme during pond-siting

Ranking Scale: 3 = Good Opportunity
2 = Good Idea for Design Team to Pursue
1 = Poor Opportunity
0 = Out of Scope/Fatal Flaw

= Advanced as recommendation
= Forwarded as design consideration
= Dropped from future consideration

6 Development Phase

The VE Recommendations are presented as written by the team during the CRAVE study. While they have been edited from the CRAVE report to correct errors or better clarify the recommendation, they represent the CRAVE team's findings during the study. Table 17 is a summary of all recommendations generated and their impact to the project.

Table 17: Recommendation Summary

Recommendations		Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	500	—	$5,405.0	—	—	0.09	—
1	TSM&O	537	+7.5	$5,405.0	$0.00	0.0	0.10	+7.5
2	Bridge Life Cycle Cost Analysis	532	+6.3	$4,343.0	($1,062.00)	-19.6	0.12	+32.3
3	Coordinate GGI Design	511	+2.2	$5,302.6	($102.40)	-1.9	0.10	+4.2
4	Constructability Options for Elevated Express Lanes	556	+11.3	$4,368.8	($1,036.25)	-19.2	0.13	+37.7
5	Separate Connection between I-395/SR 386 and Downtown	555	+11.1	$5,356.4	($48.60)	-0.9	0.10	+12.1
6	ABC Construction Method	532	+6.3	$5,338.7	($66.30)	-1.2	0.10	+7.7
7	Eliminate Local Connections Northbound	499	-0.2	$5,204.9	($200.10)	-3.7	0.10	+3.6
8	Eliminate Local Connections Southbound	554	+10.8	$5,375.7	($29.30)	-0.5	0.10	+11.4

Table 17: Recommendation Summary

	Recommendations	Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
9	P3 Procurement Process	554	+10.8	$5,405.0	$0.00	0.0	0.10	+10.8
10	4D Rendering	512	+2.4	$5,405.3	$0.3	+0.0	0.09	+2.3
11	Maintain Third Level at Gratigny	513	+2.6	$5,402.3	($2.7)	-0.0	0.09	+2.7
12	Realign I-95 in Segment 1	498	-0.3	$5,382.2	($22.8)	-0.4	0.09	+0.1
13	Public Outreach	539	+7.8	$5,413.0	$8.0	+0.1	0.10	+7.6
14	Separate Downtown Distributor Connections	561	+12.2	$5,390.1	($14.9)	-0.3	0.10	+12.5
15	Improve Local Roadways	522	+4.5	$5,408.5	$3.5	+0.1	0.10	+4.4
16	Transit - Tri-Rail	539	+7.8	$5,446.2	$41.2	+0.8	0.10	+6.9
			Total		($2,532.4)			

6.1 Design Considerations

In addition to the recommendations above, the CRAVE team generated a number of considerations that they felt were important enough to be documented and should be further considered by the project team (Table 18). Furthermore, a combination of ideas resulted in five recommendations that, after discussion with the planning and design teams, resulted in being removed as recommendations and presented as design suggestions for the stakeholders to discuss going forward in planning and design. These are presented at the bottom of Table 18; the write-ups for those suggestions are included following the recommendations in Section 6.4.

Table 18: Design Considerations/Suggestions

Component/-Function	Idea No.	Idea Description
Control Traffic	4	Use Waze and Google/Apple maps to strategize more efficient travel time (reverse toll)
Create Space	8	Optimize footprint by maximizing use of exceptions and variations
Create Space	10	Reduce number of lanes required to maintain traffic
Create Space	11	Reduce shoulder width to a minimum during construction (provide emergency pull-outs)
Create Space	12	Early identification of staging areas
Deliver Project	14	Dedicate a construction corridor to the contractor
Deliver Project	15	Use reversible lanes during construction
Deliver Project	16	Identify detours to divert traffic with specific origin and destination
Reduce Conflicts	43	Reconsider (validate) reversible lanes
Reduce Conflicts	44	Create a super express lane (downtown to Broward)
Reduce Conflicts	45	Create a reversible super express lane
Reduce Conflicts	55	Restrict bridge openings
Reduce Conflicts	56	Coordinate with Port Authority to manage ship activity during the night
Separate Traffic	74	Need to consider overhead signs with Alternative 1
Treat Stormwater	76	Include tube settlers (inlet insert)
Idea Nos.		**Idea Description**
19, 57, and 70		Coordinate I-395 design
33 through 38		Improve transit – Miami Date Metro Rail
39 through 41		Improve transit –local bus
71		Convert typical section (Alt 1 only)
72		Flip express and general purpose lanes (Alt 1 only)

6.2 FHWA Functional Benefit Criteria

Each year, State DOT's are required to report on CRAVE Recommendations to FHWA. In addition to cost implications, FHWA requires the DOT's to evaluate each approved recommendation in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in *each category that is applicable*. These same criteria can be found on each of the individual recommendations that follow.

- **Safety:** Recommendations that mitigate or reduce hazards on the facility.
- **Operations:** Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.
- **Environment:** Recommendations that successfully avoid or mitigate impacts to natural and or cultural resources.
- **Construction:** Recommendations that improve work zone conditions, or expedite the project delivery.
- **Right-of-Way:** Recommendations that lower the impacts or costs of right-of-way.

6.3 Value Engineering Recommendation Approval

The Value Engineering Recommendation form is to aid in annual reporting of VE activities to FHWA. It is the intent that the project manager review and evaluate the CRAVE team's alternatives included in this report. The Project Manager would then complete the VE Recommendation Approval Form provided in Appendix A.

Each alternative that is not approved or is modified by the Project Manager should include a justification (a summary statement containing the Project Manager's decision not to use the recommendation in the project).

The completed Value Engineering Recommendation Approval form, including justification for any recommendations not approved or modified, shall be sent to the FDOT State Value Engineer so the results can be included in the annual VE Report to the Federal Highway Administration (FHWA).

6.4 Recommendations

Based on the evaluation process, individual recommendations were developed. Each recommendation consists of a summary of the original concept, a description of the suggested change, a listing of its advantages and disadvantages, and a brief narrative that includes justification, sketches, photos, assumptions and calculations (where applicable) as developed by the CRAVE team.

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7

Baseline Concept

The baseline design concept does not show in detail recommendations for TSM&O. The baseline cost estimate provides a line item to include Intelligent Transportation Systems (ITS) at 5 percent; however, this also included signalization and tolling.

Recommendation Concept

Use TSM&O strategies along the corridor and contributing local roadways to optimize volumes on the interstate

Build TSM&O before construction so it can be used during construction

Build temporary TSM&O specifically for construction

Use adaptive signal technology at intersections

Synchronize timing of local roads to improve circulation and synchronize with I-95 operations, including replacement of signal controllers

Advantages	Disadvantages
• Manages traffic • Improves queuing off and on of interstate • Provides information to traveling public • Possibility of reducing GP lanes during construction	• Slight increase in cost • Increased maintenance (more complex) • Inoperability concerns • Local agency coordination/acceptance required

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept			
Recommendation Concept	Not quantifiable		
Cost Avoidance/(Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Implementing TSM&O strategies in accordance with the FDOT TSM&O Strategic Plan prior to construction will allow the opportunity to leverage the capabilities of TSM&O to benefit the construction of this project. The following TSM&O strategies are recommended for implementation:

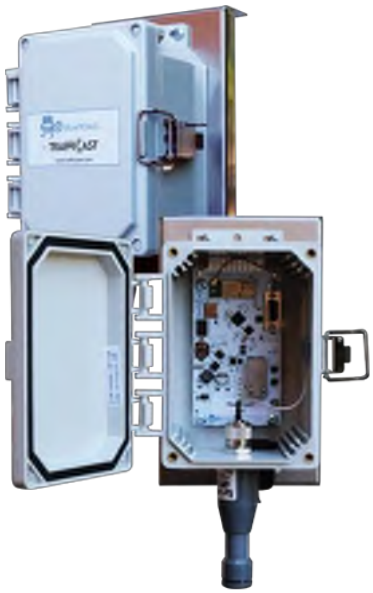
- CCTV
- BlueTooth readers
- Microwave vehicle detection sensors (MVDS)
- Pre-emption devices
- Dynamic message signs (DMS)
- Signal performancre metric (SPM) devices
- Project-dedicated temporary traffic management center (TMC)
- Adaptive Signal Controller Technology (ATCS)

Device Information

CCTVs

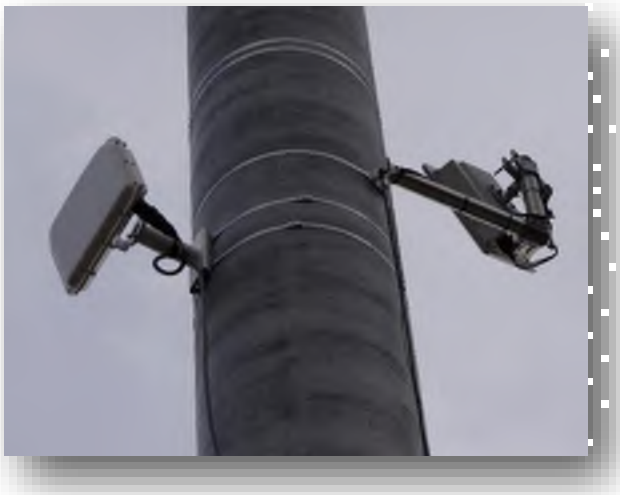
CCTV cameras are used to determine the details of traffic events along monitored arterial corridors.

Bluetooth Readers



Bluetooth™ receivers are capable of monitoring and measuring vehicular movement by identifying and comparing unique MAC (Media Access Control) addresses associated with Bluetooth-enabled electronic devices, both discoverable and non-discoverable. Speed and volume data collected from MAC addresses collected and matched from two different locations is used to determine travel times. This real-time information helps to actively manage the corridor. Additionally, Bluetooth-enabled traffic control devices can be used to monitor and measure the effectiveness of MOT during construction. This will allow real time data to be utilized to improve the MOT during construction.

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7



Microwarve Vehicle Detection Sensors (MVDS)

MVDS use constant microwaves to determine speed and occupancy within a programmed detection zone for up to eight lanes. This information is then used to determine if there is an event and determine if any actions (via signal timing or incident management) is required.

Dynamic Message Signs

DMS are used to inform motorists of real-time travel times or incidents; confirm lane blockages, such as crashes, disabled vehicles, and work zones so that they can consider alternate routes to avoid delays prior to entering work zones. By informing the motorist of real time data, vehicular demand through the work zone can be reduced.

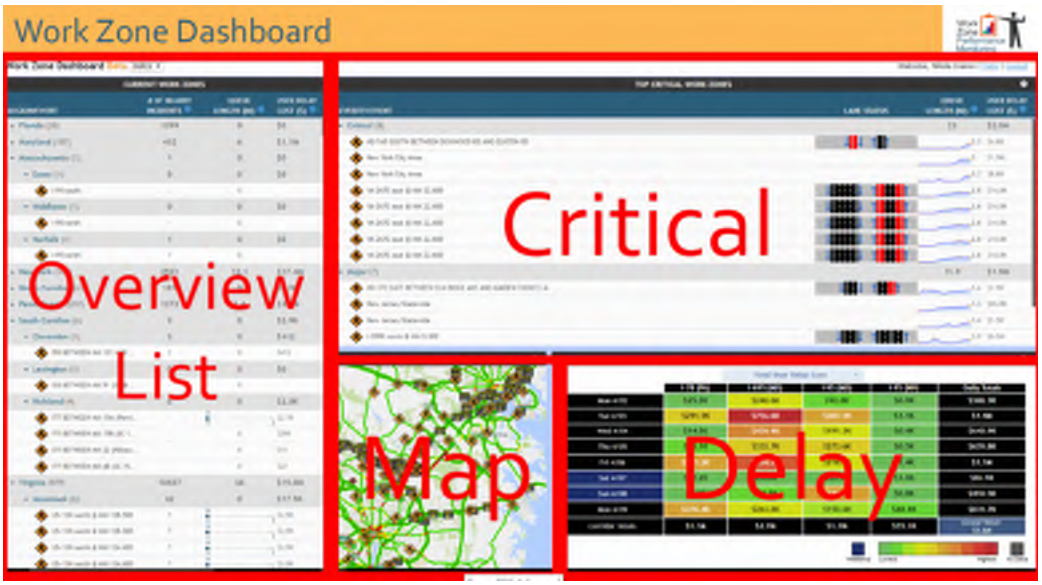
Signal Performance Metrics (SPM)

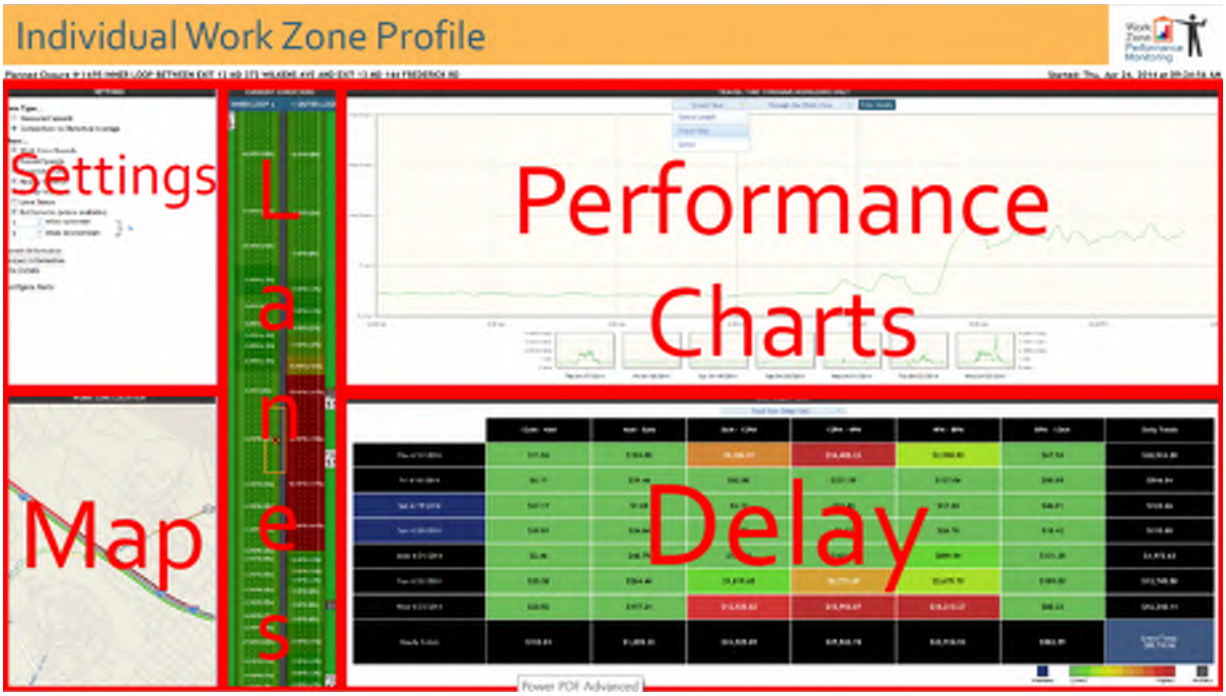
SPM is a system that will provide necessary data from the road on congestion levels, thresholds, green time utilization, etc. The traffic engineer uses this data to optimize signal timing plans more frequently. This approach is a proactive way to retiming signals based on actual traffic conditions. SPM can be utilized to optimize the local network.

Temporary Traffic Management Center

Providing a TMC will allow for real time MOT monitoring through the work zone. Data collected can be analyzed to allow the MOT requirements to be selected based on time of day and demand realized through the work zone; providing dynamic MOT driven by demand. A temporary TMC will provide a safer work zone environment, actively manages traffic, and allows real time adjustments be made to the MOT.

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7



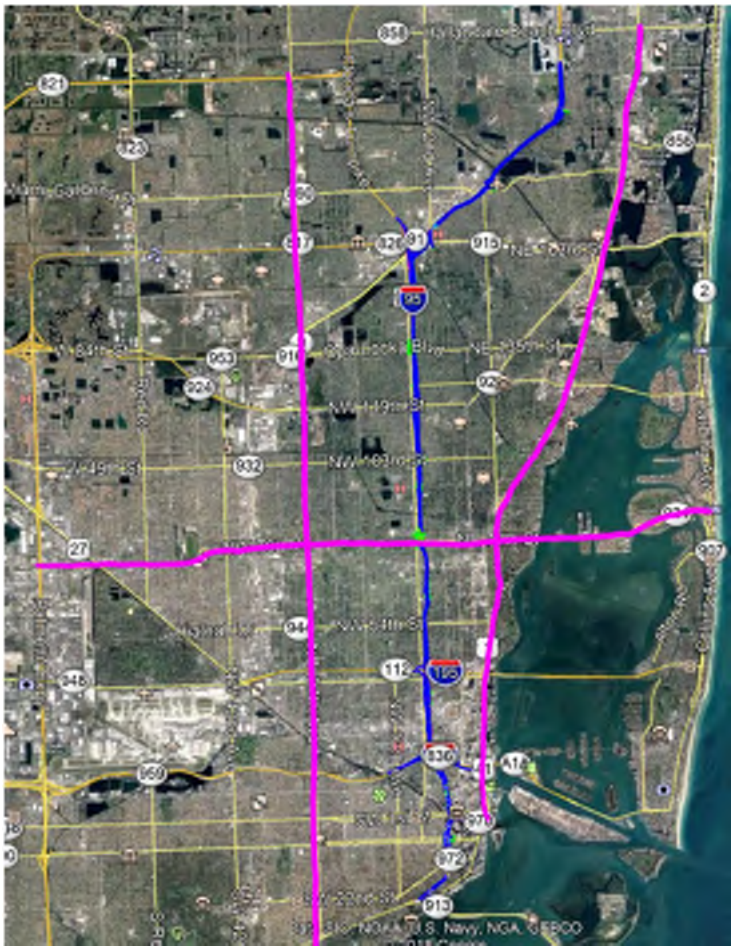


Adaptive Traffic Control System (ATCS)

ATCS is a traffic management strategy in which traffic signal timing changes, or adapts, based on actual traffic demand. ATCS has been proven to reduce congestion along a corridor by leveraging real time data to dynamically adjust the signal timing and offsets through a corridor. By identifying and implementing ATCS along major corridors along the Project prior to construction, alternate routes will be more attractive to motorists, reducing the volume of traffic through the work zone. FDOT has implemented ATCS along SW 8th Street and is deploying ATCS along NW 119th

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7

Street. Miami-Dade County is also currently deploying ATCS along several corridors within District 6. Deploying ATCS along major arterials parallel to I-95, FL 836, and SR 112 would provide a MOT benefit during construction of this project.



Major arterials to consider for adaptive signal technology include NW 27th Avenue, Biscayne Boulevard, and NW 79th Street (shown in magenta)

Improve Local Network Signal Timing

For corridors that are not identified to implement adaptive signal technology, optimize signal timing and signal coordination. By optimizing the signal network, the local network can better absorb local traffic during construction of this project thus improving the contractor's ability to maintain traffic operations.

Assumptions/Calculations

- It is assumed that corridors identified for TSM&O will be designed and constructed under a separate FDOT program in collaboration with local agencies. Cost will be incurred within a separate program.

VE RECOMMENDATION NO. 1: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O)	Idea Nos. 1, 2, 3, 5, and 7

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**6**
Provides information to traveling public; could reduce GP lanes during construction	***Weight***	**19.4**	
	Contribution	**97**	**116.4**
Local Operations	***Rating***	**5**	**6**
Provides information to local users	***Weight***	**13.8**	
	Contribution	**69**	**82.8**
Maintainability	***Rating***	**5**	**4**
More complex maintenance	***Weight***	**11.1**	
	Contribution	**55.5**	**44.4**
Construction Impacts	***Rating***	**5**	**6**
Helpful to construction crew during construction	***Weight***	**5.5**	
	Contribution	**27.5**	**33**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule	***Rating***	**5**	**5**
	Weight	**4.1**	
	Contribution	**20.5**	**20.5**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Inoperability concerns	***Rating***	**5**	**6**
	Weight	**9.7**	
	Contribution	**48.5**	**58.2**
Total Performance		**500**	**537.3**
Net Change in Performance			**7%**

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

Baseline Concept

Both alternates 1 and 2 recommend that all existing bridges be replaced due to age.

Recommendation Concept

Alternate 1: Conduct a life cycle cost analysis to all bridges and replace those that only make sense to replace.

Alternate 2 will not be evaluated as most if not all mainline I-95 bridges will be replaced due to clearance criteria.

Advantages	Disadvantages
• Reduces costs • Reduces project construction/duration • Makes project more constructible • Less user delays	• May need to redeck the bridges • Pushing replacement into the future (may cost more) • Life cycle is shorter • Constructability under alternate 1 may be more difficult in future • Design variances may be required

Cost Summary	Construction Cost	Time Savings Cost	Total Cost
Baseline Concept	$2,909,000,000	$0	$2,909,000,000
Recommendation Concept	$1,891,000,000	$(44,001,146)	$1,847,000,000
Cost Avoidance/(Added Value)	$1,018,000,000	$44,001,146	$1,062,000,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	✓

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The following is Background information from FDOT manuals on how to evaluate existing bridges and make decisions on replacement or widening

FDOT Design Manual 2018

Each project will require a determination on the most appropriate action regarding existing structures; i.e., should bridge remain as is, be rehabilitated, or be replaced. This determination should be made as early as practical due to the potential impact to the work program. Pavement resurfacing funds can only be used for minor bridge improvements such as rail retrofits and ADA improvements. Bridges that require major improvements or replacement must be programmed with appropriate bridge program funds.

The determination of bridge improvement needs is to be supported by an engineering analysis and report. The determination is to be based on an assessment of the bridge's structural and functional adequacy. The engineering report is to include the following:

(1) Project description

(2) Operational impact evaluation

(3) Safety impact evaluation that includes a detailed review of crash history, severity, contributing factors, etc.

(4) Benefit/cost analysis

If the engineering analysis determines it is not feasible to bring the bridge into full compliance with minimum criteria, a Design Exception or Design Variation addressing the feature(s) not meeting criteria must be processed in accordance with *FDM 122*. The engineering analysis and report should be used to support the Design Exception or Design Variation.

Review the Department's work program to see if a structure is scheduled for replacement, before determining short term improvements. Consider short term improvements that enhance safety, but may not bring the bridge into compliance, such as:

- Upgrading of connecting guardrail systems
- Approach roadway or shoulder widening
- "Narrow Bridge Ahead" signing and shoulder warning (see *FDM 210.4.5*)

If a bridge is functionally obsolete but structurally sound, complete replacement is usually not warranted. For these structures a full range of possible improvements should be considered to bring the structure into compliance with minimal criteria. Widening of the structure or rail retrofits are primary options. If a roadway is being programmed or considered for improvements or widening (adding lanes), consider the needs of the future structure(s).

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

When evaluating bridge replacement or widening, the following should be considered:

(1) Cost of replacing the existing bridge with a wider bridge designed to new bridge criteria.

(2) Cost of widening the existing bridge (if widening is practical), including life cycle costs of maintaining a widened bridge.

(3) The number of crashes that would be eliminated by replacement or widening.

(4) The hydraulic sufficiency and the risk of failure due to scour and/or ship impact as well as the consequences of failure.

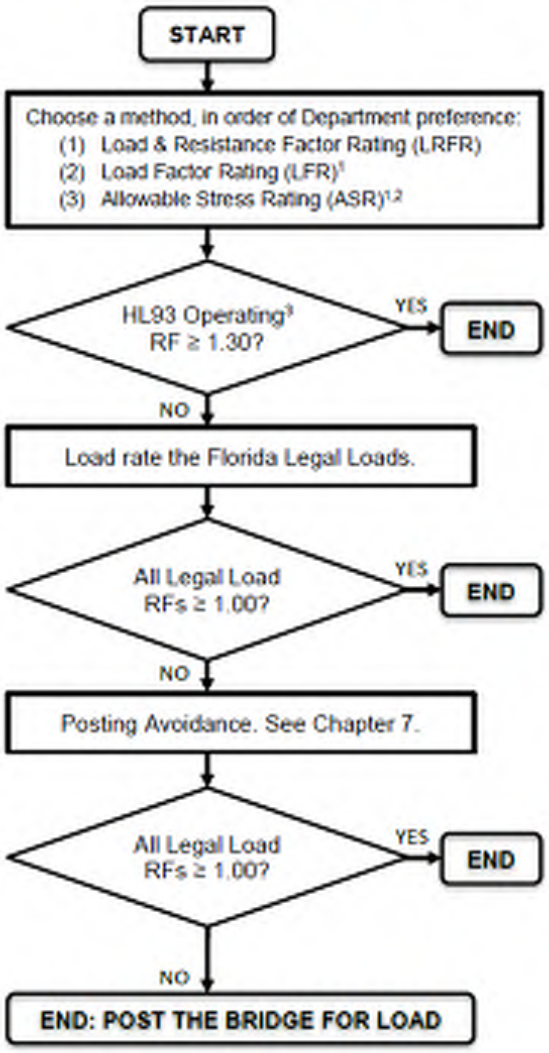
Potential Cost Savings - $0 to $1,000,000,000

Need to Evaluate

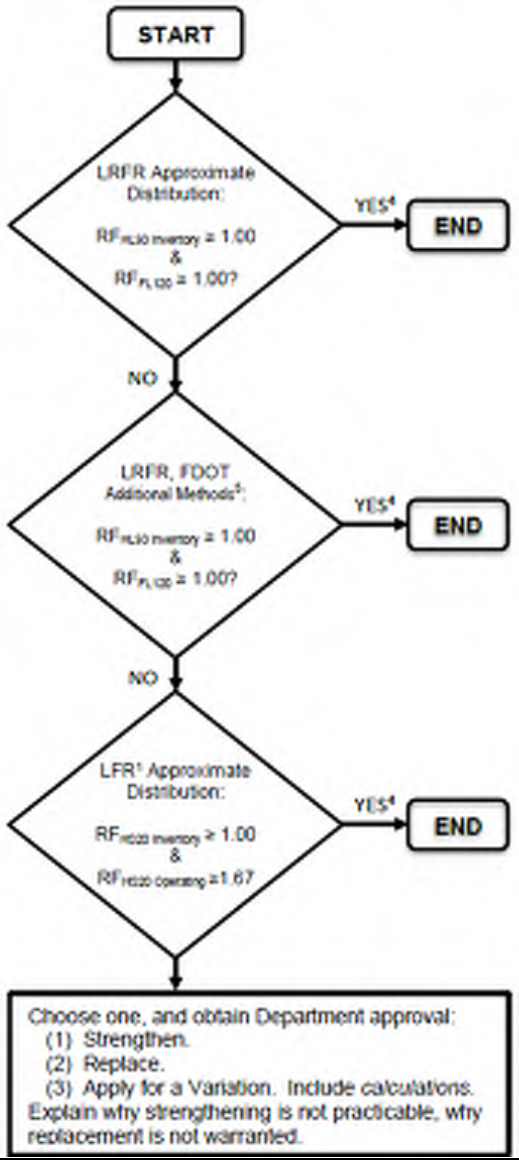
- Bridge Load Rating
- Vertical Clearance Issues
- Bridge Condition
- Conflicts

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

FDOT Figure 2-1— Existing Bridges



FDOT Fig.2-2—Widening & Rehab.



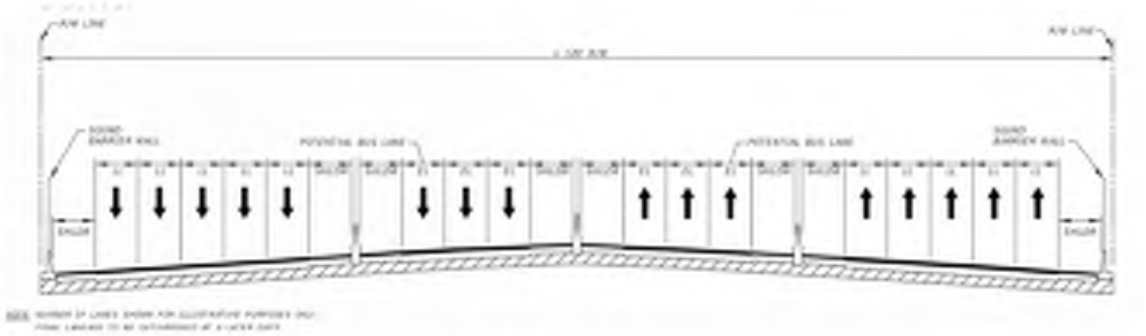
VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

Table 260.6.1 Minimum Vertical Clearances for Bridges

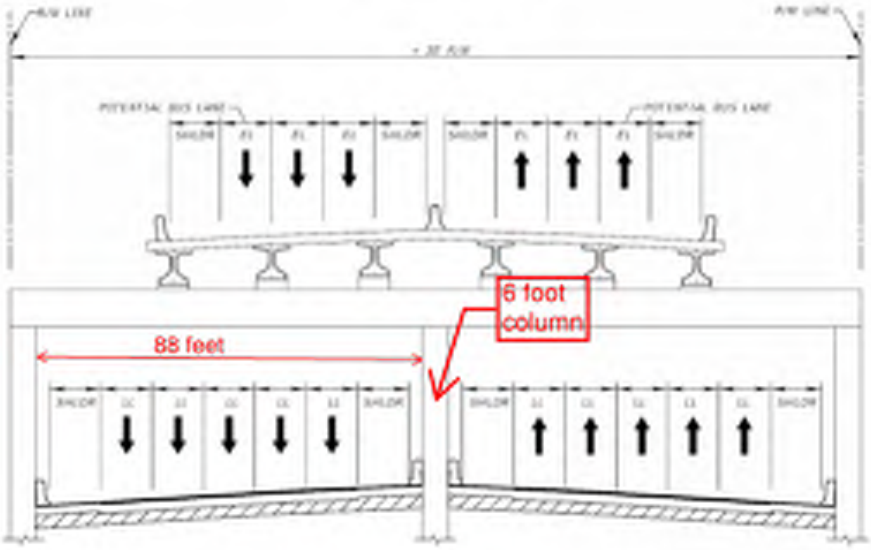
Type of Crossing	Minimum Vertical Clearance (feet)		
	New Construction		RRR
	New Bridge	Construction Affecting Existing Bridge	
Roadway or Railroad bridge over Limited Access Roadway	16.5	16.0	16.0
Roadway or Railroad bridge over Arterial or Collector Roadway			14.5
Pedestrian bridge over Roadways	17.5	17.0	
Roadway or Pedestrian bridge over Railroad	23.5		
Roadway or Pedestrian bridge over Electrified Railroad	24.25		

(1) For construction affecting an existing bridge (e.g., bridge widenings or resurfacing), if the proposed minimum design vertical clearance is between 16 feet and 16 feet 2 inches, place a note in the plans as shown in ***FDM 311***.

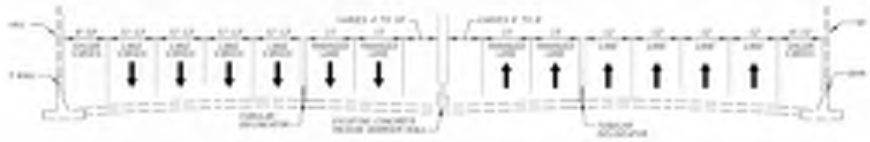
VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17



ALTERNATE 2



ALTERNATIVE 1



EXISTING TYPICAL SECTION

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

TYPICAL MAINLINE BRIDGE WIDTH

Assumptions/Calculations

Demolition costs of existing mainline bridges

Segment 1 - $105,000,000

Segment 2 - $16,000,000

Segment 3 - $46,000,000

Segment 4 - $27,000,000

Segment 5 – $1,000,000

TOTAL = $195,000,000

Replacement costs of existing mainline bridges

Segment 1 - $661,000,000

Segment 2 - $108,000,000

Segment 3 - $172,000,000

Segment 4 - $9,000,000

Segment 5 – $21,000,000

TOTAL = $971,000,000

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

Widening costs of existing mainline bridges

- $180 per SF for widening bridges
- Approx 46,000 LF of bridges
- 30 foot right of way required
- Increase in existing bridge width = 15 FEET

Segment 1 – 450,000 sf x $180 = $81,000,000

Segment 2 – 81,000 sf x $180 = $15,000,000

Segment 3 – 128,000 sf x $180 = $24,000,000

Segment 4 – 7,000 sf x $180 = $1,000,000

Segment 5 – 17,000 sf x $180 = $3,000,000

TOTAL = $124,000,000

Demolition for widening

Assume 6 feet per side for a total of 12 feet

All Segments – 12 ft x 46,000 LF x $60 = $33,120,000

Savings

($195,000,000 + $971,000,000) – $157,000,000 = $1,009,000,000 plus mark-ups.

Another way to estimate savings is by assuming that half of bridges are replacements and that 30% of them are salvageable, then the probable cost savings is of about 35% (100%-50%*30%) of the cost of all bridges.

In addition, widening bridges take considerably less time to construct. Assuming that the savings is about 25% of the overall duration of the project, about 1 year, total savings in PDC is about $44 million.

	Baseline Concept							Recommended Concept		
SCHEDULE IMPACTS	Start Date	Construction Duration (months)	Finish Date	Amount	Contracting Method	Overhead/Mo (PE, CN, CEI)	Inflationary Value	Time Savings (Mo)	OVH Savings	Inflationary Savings
Construction	7/1/2025	60.00	7/1/2030	$ 1,018,304,860	Design Build	$ 2,545,762	$ 338,680,000	$ 12	$ 30,549,146	$ 20,178,000
Post-Design	7/1/2025		7/1/2030	$ -		$ -	$ -	12.0	$ -	$ -
CEI	7/1/2025		7/31/2030	$ -		$ -	$ -	12.0	$ -	$ -
Total Savings (YOE)	$ 50,727,146									
Total Savings (PDC)	$ 44,001,146									

Overhead of Construction	
DBB	8%
DB	15%

VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

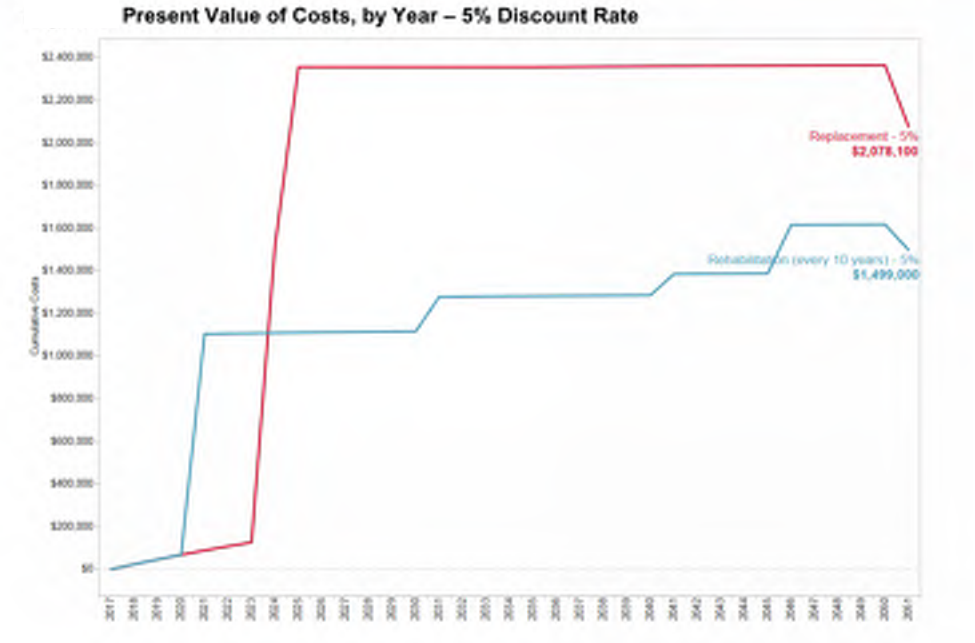
VE Study Life-Cycle Costs Calculations

I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Quantity**	**Cost/Unit**	**Total**	**Quantity**	**Cost/Unit**	**Total**
Total replacement of existing bridges	LS	1	$ 2,171,227,170	$ 2,171,227,000	0.65	$ 2,171,227,170	$ 1,411,298,000
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
SUBTOTAL				*$ 2,171,227,000*			*$ 1,411,298,000*
Mark-Up (MOT, Mob., CEI)	34%			$ 738,217,180			$ 479,841,320
Subtotal				**$ 2,909,444,180**			**$ 1,891,139,320**
Monetized Time Savings							$ (44,001,146)
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				***$ 2,909,444,180***			***$ 1,847,138,174***
COST CAPITAL SAVINGS / (INCREASE)				***$ 2,909,444,180***			***$ 1,062,306,006***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				***$ 2,909,444,180***			***$ 1,847,138,174***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 1,062,306,006***

Life Cycle Cost Example

Category	Replacement - 5%	Rehabilitation (every 10 years) - 5%
Total Life Cycle Cost	$2,078,100	$1,499,000



VE RECOMMENDATION NO. 2: BRIDGE LIFE CYCLE COST ANALYSIS	Idea No. 17

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability Will require more maintenance in the future	***Rating***	**5**	**3.5**
	Weight	**11.1**	
	Contribution	**55.5**	**38.85**
Construction Impacts Will impact locals less	***Rating***	**5**	**7**
	Weight	**5.5**	
	Contribution	**27.5**	**38.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule Improves construction schedule	***Rating***	**5**	**7**
	Weight	**4.1**	
	Contribution	**20.5**	**28.7**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Much simpler to construct	***Rating***	**5**	**8**
	Weight	**9.7**	
	Contribution	**48.5**	**77.6**
Total Performance		**500**	**531.65**
Net Change in Performance			**6%**

VE RECOMMENDATION NO. 3: COORDINATE GGI DESIGN/PLANNING AND DESIGN TEAMS	Idea Nos. 18 and 47

Baseline Concept

The baseline concept provides connections to the Turnpike, SR 826, the proposed multimodal center, and other state roads within the Golden Glades Interchange (GGI). The baseline concept has considered the projects under design available to them at the time; however, some of the proposed movements conflict with these GGI projects.

Recommendation Concept

Have the planning and design teams get together to discuss and coordinate the GGI design to minimize throw-away; new system interchange at GGI.

Advantages	Disadvantages
• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments • Could increase current GGI expected construction costs

Cost Summary	Construction Cost	Time Savings Cost	Total Cost
Baseline Concept	$102,402,687		$102,402,687
Recommendation Concept	$0		$0
Cost Avoidance/(Added Value)	$102,402,687		$102,402,687

FHWA Function Benefit

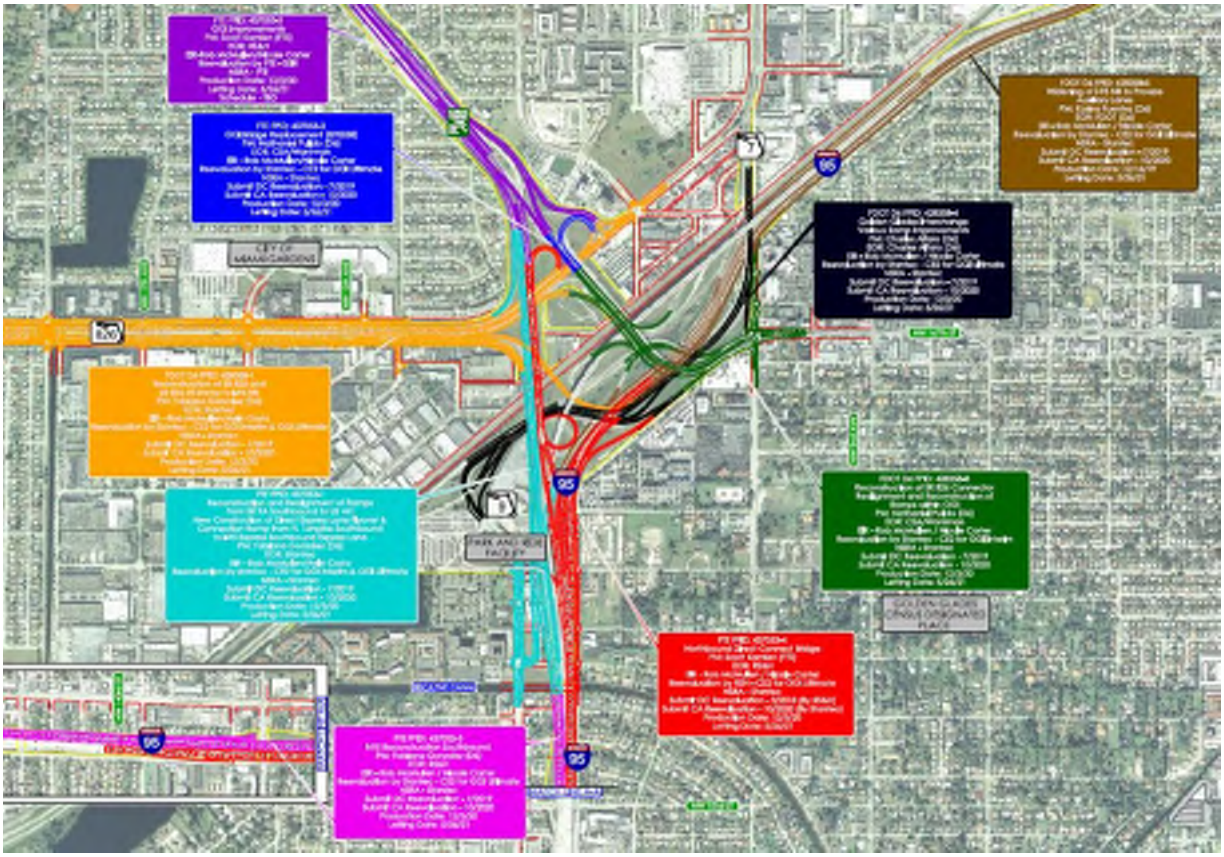
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	

VE RECOMMENDATION NO. 3: COORDINATE GGI DESIGN/PLANNING AND DESIGN TEAMS	Idea Nos. 18 and 47

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Currently, there are a total of nine projects within GGI that are under design. The scheduled letting for all these projects are year 2020/2021. To keep the throw-away to a minimum, the VE team recommends the Planning Team collect up-to-date information of all these design projects and incorporate the information into their study and recommendations.



The I-95 express lane north of GGI, as being designed by FM 428358-5, will receive two express lanes. One express lane will be from the existing flyover; the second will be from the combination of SR 826 eastbound (FM 428358-1) and a direct connection from the second express lane from I-95 northbound (FM 437053-4). There is no modification to the existing flyover bridge. The base concept proposes a new flyover with two express lanes per direction and ramps to provide direct connection to and from the SR 826 express lane. This concept conflicts with the ongoing design projects.

The current GGI projects create envelopes on SR 826 and on I-95 for future express lanes. The current SR 826 projects have been built to the right-of-way limits. There are no plans for direct connection for SR 826 eastbound to the Turnpike northbound; however, the base study proposes a direct connection from SR 826 and Turnpike.

VE RECOMMENDATION NO. 3: COORDINATE GGI DESIGN/PLANNING AND DESIGN TEAMS	Idea Nos. 18 and 47

FM 437053-4 will provide a direct connection from I-95 NB express lane to Turnpike northbound express lane, with choices to continue I-95 northbound express lane or general purpose lane, and to connect to SR 826 westbound. The Planning Concept did not include project in their layout.

There are many movements within the interchange from the proposed concept that will conflict with FM 428358-4 and FM 428358-8. Coordination with both planning and design teams will help resolve conflicts.

Assumptions/Calculations

GGI is Segment 4 of the I-95 Planning Study. Alternate 1 has a proposed number of 56 new bridge structures, and Alternate 2 has 58. Looking at the flyover reconstruction alone (level 4 bridge), the possible cost savings could be more than 93 million dollars.

The avoidance of $93 million in construction will reduce the time to construct the project; assuming a 6 months time savings of segment 3 (total construction $499,218,000), may add an additional $35.5 million in savings due to overhead cost savings (15% of construction in a DB contract) in present day cost (PDC).

	Baseline Concept							Recommended Concept		
SCHEDULE IMPACTS	Start Date	Construction Duration (months)	Finish Date	Amount	Contracting Method	Overhead/Mo (PE, CN, CEI)	Inflationary Value	Time Savings (Mo)	OVH Savings	Inflationary Savings
Construction	7/1/2025	60.00	7/1/2030	$ 405,588,250	Design Build	$ 1,013,971	$ 134,895,000	6	$ 6,083,824	$ 4,033,000
Post-Design	7/1/2025		7/1/2030	$ -		$ -	$ -	6	$ -	$ -
CEI	7/1/2025		7/31/2030	$ -		$ -	$ -	6	$ -	$ -
Total Savings (YOE)	$ 10,116,824									
Total Savings (PDC)	$ 8,772,490									

Overhead of Construction	
DBB	8%
DB	15%

VE RECOMMENDATION NO. 3: COORDINATE GGI DESIGN/PLANNING AND DESIGN TEAMS

Idea Nos. 18 and 47

VE Study Life-Cycle Costs Calculations

I-95 Planning VE Study

Component	Unit	Baseline Concept Quantity	Baseline Concept Cost/Unit	Baseline Concept Total	VE Recommended Concept Quantity	VE Recommended Concept Cost/Unit	VE Recommended Concept Total
I-95 EXPESS LANES SB				$ 4,884,764.83			$ -
I-95 EXPESS LANES NB				$ 24,563,786.09			$ -
PALMETTO EXPRESSWAY EB EXPRSS LANES RAMP TO I-95 SB EXPRESS LANES				$ 5,581,012.46			$ -
I-95 EXPESS LANES SB				$ 18,677,292.91			$ -
I-95 EXPRESS LANES SB RAMP TO PALMETTO EXPRESSWAY WB EXPRESS LANES				$ 1,164,231.97			$ -
I-95 EXPESS LANES SB				$ 8,401,342.32			$ -
ON-RAMP TO I-95 EXPRESS LANES NB				$ 588,175.83			$ -
I-95 EXPESS LANES NB				$ 6,012,674.62			$ -
							$ -
							$ -
							$ -
							$ -
SUBTOTAL				*$ 69,873,281.05*			$ -
Mark-Up (MOT, Mob., CEI)	34%			$ 23,756,915.56			$ -
Subtotal				**$ 93,630,196.60**			**$ -**
Monetized Time Savings							$ (8,772,490.42)
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				***$ 93,630,196.60***			***$ (8,772,490.42)***
COST CAPITAL SAVINGS / (INCREASE)				***$ 93,630,196.60***			***$ 102,402,687.02***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				***$ 93,630,196.60***			***$ (8,772,490.42)***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 102,402,687.02***

VE RECOMMENDATION NO. 3: COORDINATE GGI DESIGN/PLANNING AND DESIGN TEAMS

Idea Nos. 18 and 47

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	*Rating*	5	5
	Weight	19.4	
	Contribution	97	97
Local Operations	*Rating*	5	5
	Weight	13.8	
	Contribution	69	69
Maintainability	*Rating*	5	5
	Weight	11.1	
	Contribution	55.5	55.5
Construction Impacts Reduces possible throw-away	*Rating*	5	7
	Weight	5.5	
	Contribution	27.5	38.5
Environmental Impacts	*Rating*	5	5
	Weight	17.0	
	Contribution	85	85
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts	*Rating*	5	5
	Weight	19.4	
	Contribution	97	97
Constructibility/MOT	*Rating*	5	5
	Weight	9.7	
	Contribution	48.5	48.5
Total Performance		500	511
Net Change in Performance			2%

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

Baseline Concept

In the corridor planning study, the Tier 2 Alternative concepts recommended are considered the baseline concepts. Alternative 1 is a concept designed to minimize right-of-way acquisition by stacking the mainline express lanes over the general purpose lanes for the majority of the corridor. Alternative 2 is a concept designed to minimize the elevated structures by putting the mainline express lanes and general purpose lanes on the same level and acquire right-of-way to create the footprint required.

Recommendation Concept

The recommendation concept explores other valuable concepts that could be implemented as a whole, or combinations of each, throughout the corridor.

1. Acquire right-of-way to maintain traffic to build Alternative 1.
2. Build an alternative that is a hybrid of Alternatives 1 and 2 with one direction of express lanes stacked.
3. Build and alternative with elevated express lanes to outside of general purpose lanes and salvage most of existing I-95 for general purpose lanes.

Advantages	Disadvantages
• Makes the project constructible (1,2,3) • Reduces double-stacking of structures over local roads (3) • Greatly reduces complexity of MOT (2,3) • Improves MOT by reducing construction activities over existing I-95 mainline and structural elements along center section (3) • Salvages existing structures (2,3) • Salvages existing roadway (2,3) • Minimizes throw-away (3) • Can maintain express lanes during construction (3) • Reduces foundation footprint (3) • Reduces overhead construction (I-95 Mainline) (3) • Improves direct connects (3) • Lowers level bridges (2,3)	• Increases size of right-of-way procurement (1) • Moves bridge closer to residences and businesses (3) • Increases noise impacts (3) • May increase complexity of ramps (3)

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$4,203,238,000	$649,700,000	$4,852,938,000
Recommendation Concept	$3,376,031,000	$440,650,000	$3,816,681,000
Cost Avoidance/(Added Value)	$827,207,000	$209,050,000	$1,036,257,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓	✓	✓	✓

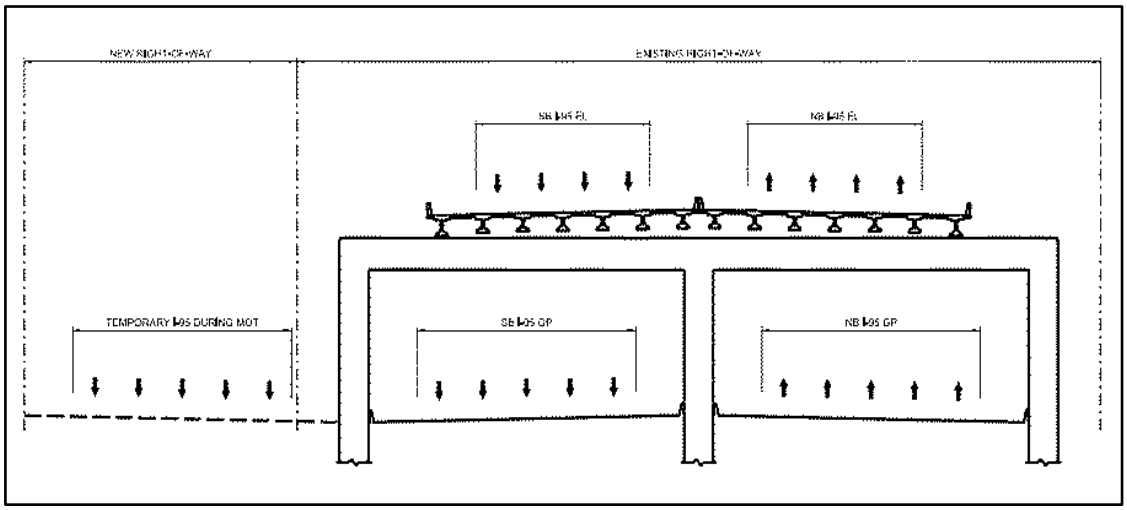
VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

1. Recommendation Concept No. 1: It is noted that for a significant portion of the corridor the proposed Alternative 1 mainline occupies the same footprint as the existing mainline. This is particulary the case for the entire segment 3. There is not enough room within the existing mainline footprint to shift and maintain traffic sufficiently for a reasonable construction schedule. In order to construct the proposed structures for Alternative 1 it is recommended to acquire sufficient right-of-way to shift an entire direction of mainline traffic onto temporary pavement or temporary bridge. By clearing an entire direction of existing mainline I-95, the construction of half of the baseline ultimate condition can be accomodated with minimal impact to construction activities. This will significantly simplify and facilitiate the construction schedule with minimal disruption to existing traffic due to the reduced number of traffic shifts and lane closures. The reduction in MOT phasing and sequencing impacts is expected to have a significant cost benefit to the project that should offset some of the cost of right-of-way acquisition.

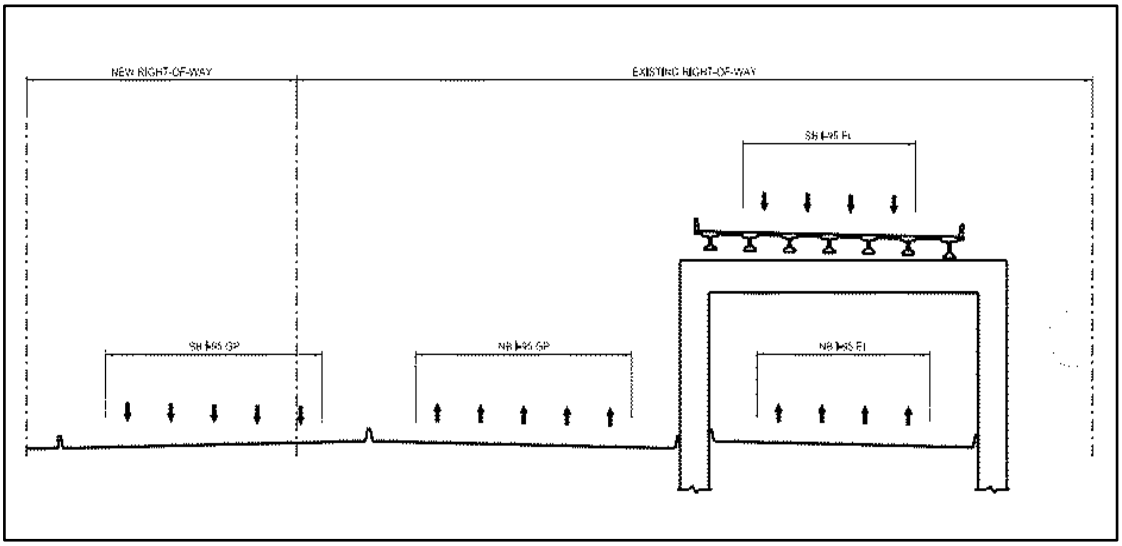
Alternative 1 – Segment 3 Lane Configuration with Assumed Temporary MOT Lanes



2. Recommendation Concept No. 2: It is proposed in this recommendation that the tempoary roadway required to maintain temporary traffic described in the previous recommendation concept no. 1 be designed and utilized as permanent roadway. With the new mainline general purpose lanes shifted along the alignment the construction of stacked express lanes can occur to the opposite side of the alignment as shown in Figure. The result is a hybrid between baseline Alternatives 1 and 2 with half the mainline express lanes on elevated structures as proposed in baseline Alternative 1 and roughly half the right of way acquisition proposed in the baseline Alternative 2. Additionally, construction duration and MOT is simplified further over the previous recommendation since the elevated structures can be completed in one phase rather than two separate phases.

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

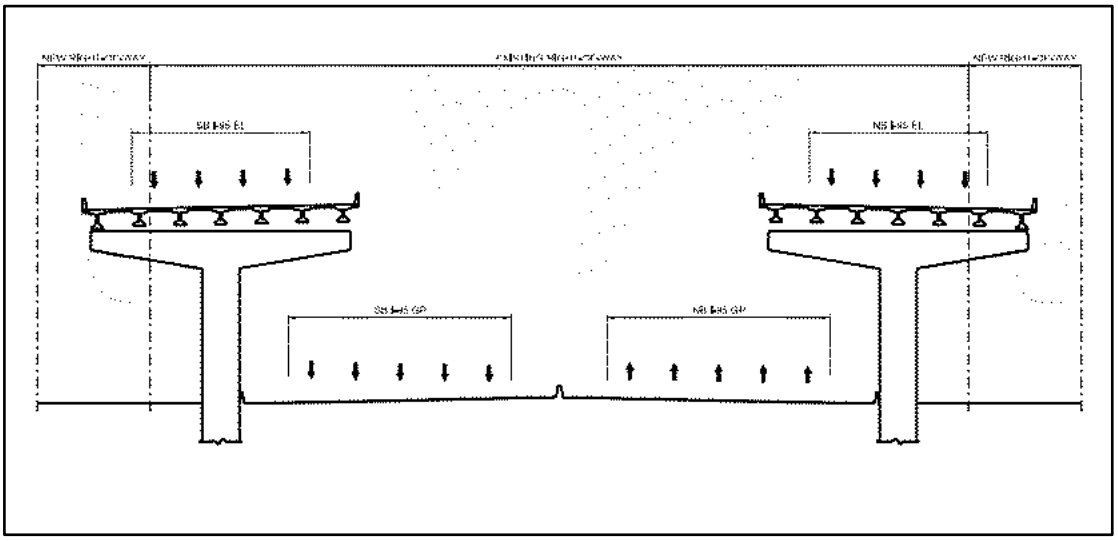
Figure: Hybrid of Alternative 1 and 2 – Segment 3 with stacked Express Lanes



3. Recommendation Concept No. 3: Another recommendation that could be widely implement in most of the 5 segments and provide an enormous cost and constructability value eliminates the need to build the Alternative 1 straddles over the proposed general purpose lanes. This recommendation includes building wide hammerhead piers to the outside to support each direction of proposed express lane traffic as shown in Figure. For a similar acquisition of right of way as recommendation 1 the express lanes can be elevated and will greatly minimize construction phasing and MOT impacts. The hammerhead piers could be constructed to the side as the existing lanes are repositioned to the ultimate general purpose lane configuration and bridges slightly widened. The construction of the hammerhead cap can be constructed as post tensioned segments allowing for minimal lane closures. It is also proposed in this recommendation to reuse as much of the existing I-95 mainline, including bridge structures, to the extent possible, to reduce project cost and minimize MOT.

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

Figure: Segment 3 with Outside elevated Express Lanes



Assumptions/Calculations

- Alternative No. 2 is used in the cost summary as the baseline concept for construction and right-of-way costs.
- The assumed MOT concept for the baseline concept for Alternative 1 has not been provided. The MOT scheme presented was determined in follow up conversations with the baseline concept designers.
- The current understanding is that the baseline concept is a complete replacement of existing I-95.
- All measurements were taken from a PDF file; no CADD has been provided.
- The location of the existing right-of-way line varies greatly throughout the segment 3 zone. The location shown is consistent with the location shown in the baseline concept presentation for comparison purposes.

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

HDR

Project: APPROX. COST OF | Computed: K. SABBAG | Date: 5/24/18
Subject: ELEVATED ELs (NEW OPTION) | Checked: | Date:
Task: | Page: 1 of 2
Job #: | No:

1. COST OF K.H. PLANNING STUDY, ALT. NO. 2:

= $4,203,238,000.00

2. DEDUCT K.H. PLANNING STUDY, EXIST. STRUCT. DEMO.:

<$2,430,639,000.00>

3. ADD BRIDGE WIDENING COST ASSUMPTION:

+ $50,000,000.00

4. DEDUCT SEGMENTS I-5, ALT. NO. 2 ELs TO ELEVATED STRUCTURES:

83 LANE MILES @ $1.6 M/LANE MILE <$132,800,000.00>

5. ADD COST OF NEW ELEVATED STRUCTURES:

SEG. 1 = ALREADY BUILT = $0

SEG. 2 = 3 · 12' (ELs) + 24' (SHOULDERS) = 60' · 2 EA × 2 NM = 1,267,200 $

SEG. 3 = 4 · 12' (ELs) + 24' (II) = 72' · 2 EA × 6 NM = 4,561,920 $

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

Project: Computed: Date:
Subject: Checked: Date:
Task: Page: 2 of 2
Job #: No:

(CONT.)

SEG. 4 = 4 · 12' (ELS) + 24' (SHOULDERS) = 72' × 0.5 EA × 1.5 NM
= 285,120 #

SEG. 5 = 2 · 12' (ELS) + 24' (") = 48' × 2 EA × 4.25 NM
= 2,154,240 #

TOTAL = 8,268,480 # @ $150/#

+ $1,240,272,000.00

$2,930,071,000.00

ADD 15% CONTINGENCY + 439,510,650.00

$ 3,369,581,650.00

VE RECOMMENDATION NO. 4: CONSTRUCTIBILITY OPTIONS FOR ELEVATED EXPRESS LANES	Idea Nos. 9 and 25

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations May impact CDs and local roadways	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability Hammer head structure may be easier to maintain More room for maintenance	***Rating***	**5**	**6**
	Weight	**11.1**	
	Contribution	**55.5**	**66.6**
Construction Impacts Less impact to traffic; fewer detours	***Rating***	**5**	**8**
	Weight	**5.5**	
	Contribution	**27.5**	**44**
Environmental Impacts Requires fewer foudnation/structures; closer (more noise) Alt 1 is worse, Alternative 2 is better	***Rating***	**5**	**4.5**
	Weight	**17.0**	
	Contribution	**85**	**76.5**
Project Schedule Can be constructed faster than the baseline	***Rating***	**5**	**7**
	Weight	**4.1**	
	Contribution	**20.5**	**28.7**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT It is constructible	***Rating***	**5**	**8**
	Weight	**9.7**	
	Contribution	**48.5**	**77.6**
Total Performance		**500**	**556.4**
Net Change in Performance			**11%**

VE RECOMMENDATION NO. 5: SEPARATE CONNECTION BETWEEN I-395/SR 836 AND DOWNTOWN	Idea No. 58

Baseline Concept

The existing I-95 and downtown distributor interchange includes six ramps to provide access to and from S. Miami Ave and NE 2nd Avenue/ Brickell Avenue northbound and southbound access it provided to from both roadways in the existing conditions. The two alternatives developed maintain northbound and southbound access from both roadways to and from I-95. The alternatives also add access to the express lanes, which add additional ramps to this area.

Recommendation Concept

Provide separate connection between I-395/SR 836 and downtown distributor to allow local roadways to connect into I-95 sooner.

Advantages	Disadvantages
• Simplifies connection to downtown connectors • Reduces the number of ramps • Simplifies signing • Reduces driver confusion • Increases demand processed by local network and ramps	• Removes existing movements • Public acceptance • May increase local congestion • May increase travel times

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$173,126,557		$173,126,557
Recommendation Concept	$124,550,835		$124,550,835
Cost Avoidance/(Added Value)	$48,575,722		$48,575,722

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	✓

VE RECOMMENDATION NO. 5: SEPARATE CONNECTION BETWEEN I-395/SR 836 AND DOWNTOWN	Idea No. 58

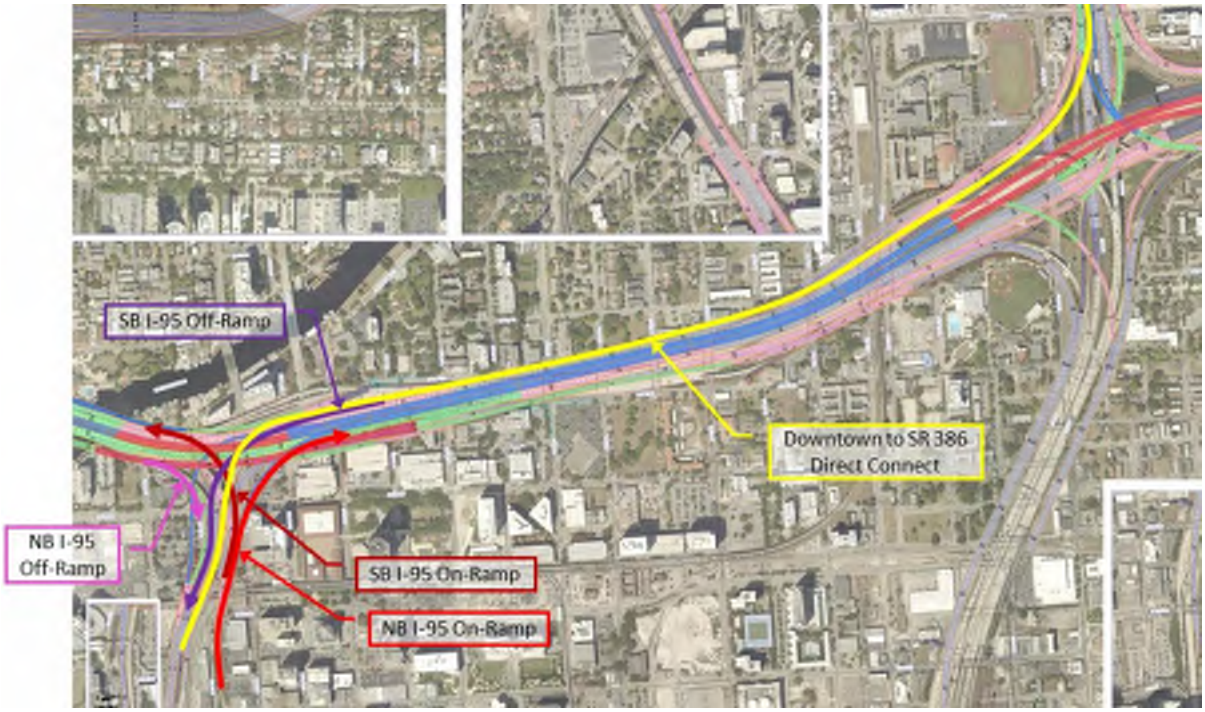
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The local roadway network within the downtown core provides opportunities to provide a direct connection between the downtown distributor and SR 836. Based on the traffic information this movement is very heavy. By making a direct link to between the roadways, the volumes, and required ramps along I-95 would be reduced.

The 2045 demand traffic and the volumes the Vissim model was able to process through the network due to the constraints placed on the network at the local inputs were validated during this study. Based on the SERPM demand model and the Vissim simulation model of the concept, the local network will be unable to process the demand to/from I-95 during peak periods. This will result in latent demand and extend the peak hour congestion. By providing a separate direct link between downtown to SR 836, congestion on the downtown distributor ramps and the local network will be reduced.

The link would connect SR 836 to downtown using the NE 2nd Avenue/Brickell Avenue entrance ramp and SE 3rd Avenue exit ramp. The direction connection should be analyzed as a two-way ramp or as a reversible two-lane ramp. Traffic downtown wanting to access I-95 would use the S. Miami Avenue entrance ramp and the SE 1st Avenue exit ramps.



VE RECOMMENDATION NO. 5: SEPARATE CONNECTION BETWEEN I-395/SR 836 AND DOWNTOWN	Idea No. 58

Assumptions/Calculations

It is assumed any modifications to the local network to reconfigure the downtown distributor ramps to better serve the demand traffic will be implemented.

VE Study Life-Cycle Costs Calculations

I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	Unit	Quantity	Cost/Unit	Total	Quantity	Cost/Unit	Total
I-95 NB OFF-RAMP TO SE 3RD ST.	SF	35013.11	$ 220.00	$ 7,702,884.49	35013.11	$ 220.00	$ 7,702,884.49
DOWNTOWN ON-RAMP TO I-95 SB	SF	22576.05	$ 220.00	$ 4,966,731.07	11288.03	$ 220.00	$ 2,483,365.53
I-95 SB EXPRESS LANE RAMP TO SE 3RD ST.	SF	41796.94	$ 220.00	$ 9,195,327.04	0	$ 220.00	$ -
I-95 NB & SB OFF-RAMP TO SE 3RD ST.	SF	13384.44	$ 180.00	$ 2,409,198.82	6692.22	$ 180.00	$ 1,204,599.41
I-95 NB & SB OFF-RAMP TO SE 3RD ST.	SF	16655.84	$ 160.00	$ 2,664,935.17	16655.84	$ 160.00	$ 2,664,935.17
I-95 NB & SB OFF-RAMP TO SE 3RD ST. & 2ND AVE	SF	36015.14	$ 160.00	$ 5,762,421.65	0	$ 160.00	$ -
RAMP TO SE 3RD ST.	SF	24852.49	$ 160.00	$ 3,976,398.16	24852.49	$ 160.00	$ 3,976,398.16
I-95 SB OFF-RAMP TO DOWNTOWN	SF	58012.11	$ 160.00	$ 9,281,937.49	29006.05	$ 160.00	$ 4,640,968.74
DOWNTOWN ON-RAMP TO I-95 SB	SF	20109.5	$ 220.00	$ 4,424,090.15	0	$ 220.00	$ -
DOWNTOWN ON-RAMP TO I-95 SB	SF	4897.049	$ 220.00	$ 1,077,350.80	4897.049	$ 220.00	$ 1,077,350.80
DOWNTOWN ON-RAMP TO I-95 SB & I-95 NB EXPRESS	SF	19646.59	$ 220.00	$ 4,322,250.55	9823.297	$ 220.00	$ 2,161,125.27
DOWNTOWN ON-RAMP TO I-95 SB, I-95 NB, & I-395	SF	22332.41	$ 160.00	$ 3,573,185.01	22332.41	$ 160.00	$ 3,573,185.01
DOWNTOWN ON-RAMP TO I-395 I-95 NB, & SR 112	SF	20427.78	$ 160.00	$ 3,268,445.15	20427.78	$ 160.00	$ 3,268,445.15
DOWNTOWN ON-RAMP TO I-95 NB & NB EXPRESS	SF	11502.18	$ 160.00	$ 1,840,349.38	0	$ 160.00	$ -
DOWNTOWN ON-RAMP TO I-395 I-95 NB, & SR 112	SF	20379.17	$ 160.00	$ 3,260,666.59	0	$ 160.00	$ -
DOWNTOWN ON-RAMP TO I-395 I-95 NB, & SR 112	SF	23162.77	$ 200.00	$ 4,632,553.36	0	$ 200.00	$ -
DOWNTOWN ON-RAMP TO I-395 I-95 NB, & SR 112	SF	128999.6	$ 160.00	$ 20,639,939.04	128999.6	$ 160.00	$ 20,639,939.04
DOWNTOWN ON-RAMP TO I-95 NB EXPRESS	SF	25400.74	$ 250.00	$ 6,350,184.40	0	$ 250.00	$ -
I-95 EXPRESS LANES & OFF RAMP TO SE 3RD ST.	SF	12451.51	$ 200.00	$ 2,490,302.80	0	$ 200.00	$ -
SR 836 to DOWNTOWN Direct Connect	SF	0	$ 180.00	$ -	110400	$ 180.00	$ 19,872,000.00
				$ -			$ -
SUBTOTAL				*$ 101,839,151.11*			*$ 73,265,196.78*
Mark-Up (MOT, Mob., CEI)	70%			$ 71,287,405.78			$ 51,285,637.74
Subtotal				**$ 173,126,556.89**			**$ 124,550,834.52**
Monetized Time Savings							$ -
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				***$ 173,126,556.89***			***$ 124,550,834.52***
COST CAPITAL SAVINGS / (INCREASE)							***$ 48,575,722.37***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				***$ 173,126,556.89***			***$ 124,550,834.52***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 48,575,722.37***

VE RECOMMENDATION NO. 5: SEPARATE CONNECTION BETWEEN I-395/SR 836 AND DOWNTOWN	Idea No. 58

PERFORMANCE MEASURES Attributes and Rating Rationale for	Performance	Original	Alternative
Main Line Operations	*Rating*	5	6
Avoids mixing traffic on I-95 (reduces weaving) Removes volume from main line	*Weight*	19.4	
	Contribution	97	116.4
Local Operations	*Rating*	5	5
Depending on the feeding of local roadways, it may degrade; requires analyzing	*Weight*	13.8	
	Contribution	69	69
Maintainability	*Rating*	5	5
	Weight	11.1	
	Contribution	55.5	55.5
Construction Impacts	*Rating*	5	4.5
More impacts to local roadway networks	*Weight*	5.5	
	Contribution	27.5	24.75
Environmental Impacts	*Rating*	5	5
	Weight	17.0	
	Contribution	85	85
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts	*Rating*	5	7
Reduces gore points and weaving	*Weight*	19.4	
	Contribution	97	135.8
Constructibility/MOT	*Rating*	5	5
	Weight	9.7	
	Contribution	48.5	48.5
Total Performance		500	555.45
Net Change in Performance			11%

VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

Baseline Concept

Option 1 - Planning studies usually do not look at accelerated bridge construction (ABC) techniques as such construction techniques are usually established during the bridge development report phase. Therefore the base concepts did not take into account constructibility. Bridges recommended under option 1 are conventional Florida I-girders using straddle bents over both southbound and northbound I-95.

Recommendation Concept

ABC is a paradigm shift in the project planning and procurement approach where the need to minimize mobility impacts that occur due to onsite construction activities are elevated to a higher priority. Use of ABC is suggested for all I-95 mainline second level/third level structures and possibly higher structures.

From the Owner Agency perspective ABC may require a change in how a project is approached and how it is justified.

Advantages	Disadvantages
• Faster construction • Improves constructibility • May cost less for MOT • Easier to construct with limited right-of-way • Less disruptions to traffic • Improved safety • Improved quality • Reduce right-of-way required • Improved Aesthetics	• May cost more for structures • Required staging area nearby • Reduces express lanes from 4 to 3

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$5,400,000,000		$5,400,000,000
Recommendation Concept	$5,333,674,000		$5,333,674,000
Cost Avoidance/(Added Value)	$66,326,000		$66,326,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
			✓	

VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

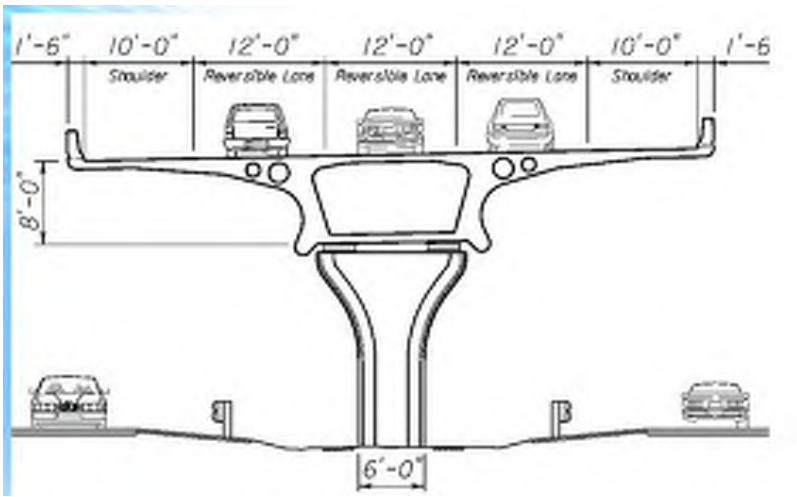
Applicability

- Good for projects with economy of scale
- Longer duration projects balance the learning curve with increased productivity as the project progresses.
- Reducing construction time can reduce overall project costs due to lower associated insurance rates, labor rates, and overhead costs.
- Reducing construction time over existing traffic can reduce MOT costs.
- PBES may be appropriate on projects with high traffic volumes where it is critical to minimize traffic impacts or where construction of the structure is time critical.

Results of ABC

- ABC improves:
  - Site Constructability
  - Total project delivery time
  - Work-zone safety for the traveling public

- ABC reduces:
  - Traffic Impacts
  - Onsite construction time
  - Weather-related time delays



VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

Assumptions/Calculations

Assuming a 15 percent time savings as a result of using ABC (about 1.8 months per year), accumulated time saving of about 9 months total, and assuming a 15 percent overhead for a design build delivery method, present day cost only, total savings is estimated at $66,326,000. Calculations below:

I-95 Planning VE Study

	Baseline Concept							Recommended Concept		
SCHEDULE IMPACTS	Start Date	Construction Duration (months)	Finish Date	Amount	Contracting Method	Overhead/Mo (PE, CN, CEI)	Inflationary Value	Time Savings (Mo)	OVH Savings	Inflationary Savings
Construction	7/1/2018	84.00	6/30/2025	$ 5,400,000,000	Design Build	$ 9,642,857	$ -	12.60	$ 121,500,000	$ -
Post-Design	7/1/2018		6/30/2025	$ -		$ -	$ -	12.6	$ -	$ -
CEI	7/1/2018		7/30/2025	$ -		$ -	$ -	12.6	$ -	$ -
Total Savings (YOE)	$ 121,500,000									
Total Savings (PDC)	$ 121,500,000									

Overhead of Construction	
DBB	8%
DB	15%

As a cost reference, the following is a quote from the ASBI newsletter:

Lee Roy Selmon Crosstown Expressway Quote from ASBI

With more than 3,000 nine-foot long segments included in the construction, the elevated lanes project reached maximum efficiency. For the project as a whole, the extremely low cost of the bridge, coupled with the elimination of the need to acquire virtually any right-of-way for these new express lanes, resulted in one of the lowest costs for a major urban expressway expansion anywhere in the United States. Cost of construction based on the bid, was $65 per square foot of bridge deck. A total of 17.5 lane/miles were constructed at approximately $120 million; translating to $7 million per lane/mile - a relative bargain among U.S. transportation projects.

As much as 2400 linear feet of bridge was constructed in a single month, while traffic flowed on the adjacent expressway lanes.

Bid 2005

VE RECOMMENDATION NO. 6: ABC CONSTRUCTION METHOD	Idea Nos. 66 and 67

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability	***Rating***	**5**	**5**
	Weight	**11.1**	
	Contribution	**55.5**	**55.5**
Construction Impacts Impact to traffic will be reduced	***Rating***	**5**	**7**
	Weight	**5.5**	
	Contribution	**27.5**	**38.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule Faster to construct	***Rating***	**5**	**6.5**
	Weight	**4.1**	
	Contribution	**20.5**	**26.65**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Improved constructability	***Rating***	**5**	**6.5**
	Weight	**9.7**	
	Contribution	**48.5**	**63.05**
	Total Performance	**500**	**531.7**
	Net Change in Performance		**6%**

VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51

Baseline Concept

In the current design, Alternative 1 includes several ramps and frontage roads between SW 25th Street and SR 836/I-395, which allow drivers to stay off of I-95. These connections include: SW 25th Street to SW 8th Street; SW 8th Avenue/SW 4th Avenue to SR 836/I-395; and SR 7th Street to SR 836/I-395. These connections require a complex network of ramp gore and frontage roads, which will slow traffic and increase the complexity of the project. It also requires construction of 94,000 SF of bridge at 6th level and 63,000 SF of bridge at 4th level. On the north side of the downtown connector, the frontage roadway is located on top of the northbound on-ramp from the downtown connector creating a stacked roadway.

With Alternative 2, a two-lane frontage roadway is provided between SW 8th Avenue and the SR 836/I-395 Interchange. The length of this roadway is almost 1.5 miles and a majority of the structures are on 3rd level. This connection also includes significant right-of-way and local roadway impacts between SW 10th Street and SR 8th Street east of I-95. Another concern with the two-lane frontage roadway is that it serves to provide access from northbound I-95 south of the river to the downtown connector, NW 5th Street, and I-395. The frontage road also includes a short weave (1,600 feet) and close gore spacing (800 feet).

Recommendation Concept

Eliminate local connection from 25th Street to 8th Street (#48) – Alt 1

Eliminate direction connection from south side of river to SR 836/I-395 (#48A) – Alt 1 & 2

Reduce number of connections south of the river (combine movements) (#51)

Advantages	Disadvantages
• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$2,318,017,700		$2,318,017,700
Recommendation Concept	$2,117,846,100		$2,117,846,100
Cost Avoidance/(Added Value)	$200,171,600		$200,171,600

FHWA Function Benefit

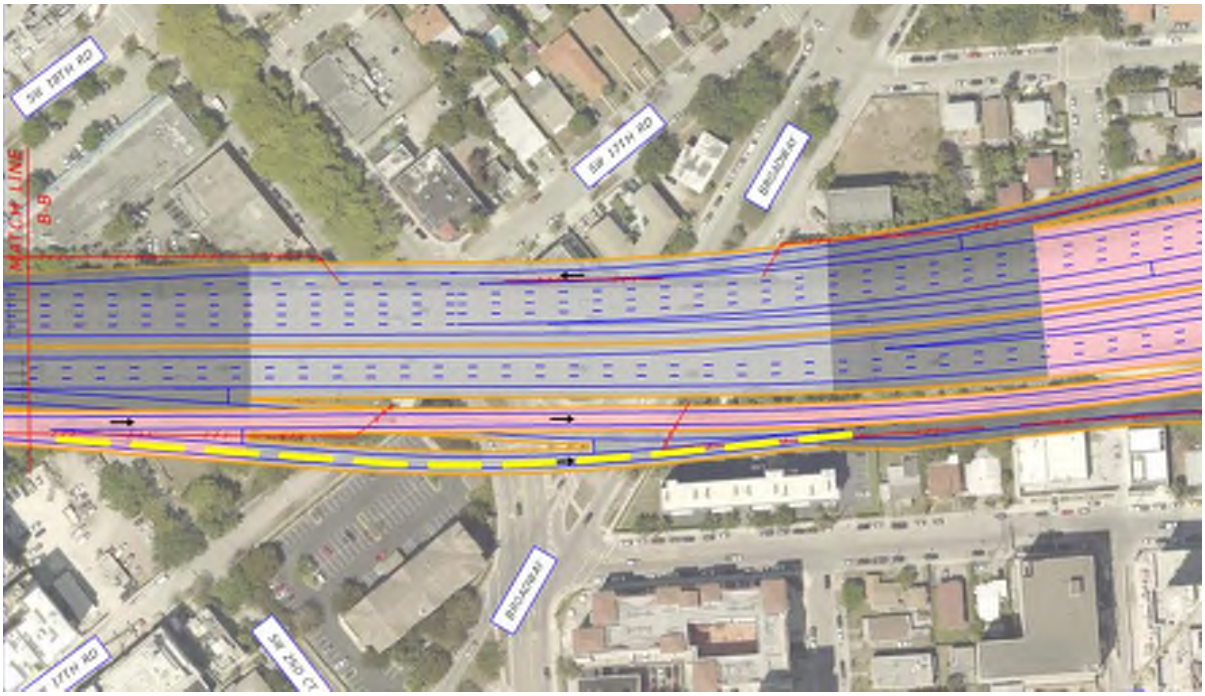
Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓	✓	✓	✓

VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Under Alternative 1, the ramp from the Rickenbacker Causeway connects to I-95 approximately 1,500 ft. north of SW 25th Avenue and the on-ramp from SW 25th Road runs parallel to I-95 for approximately 1 mile before it connects to I-95 near SW 8th Avenue. This parallel roadway includes a 1,000 ft. connection (yellow dashed line) which allow vehicles to travel from SW 25th Road to SW 8th Avenue without getting onto I-95. This parallel roadway also includes a braided ramp over the NB I-95 off-ramp to SW 8th Avenue.



If the ramps shown in Alternative 2, from the Rickenbacker Causeway and SW 25th Road are incorporated, this connection and braided ramp would be eliminated.

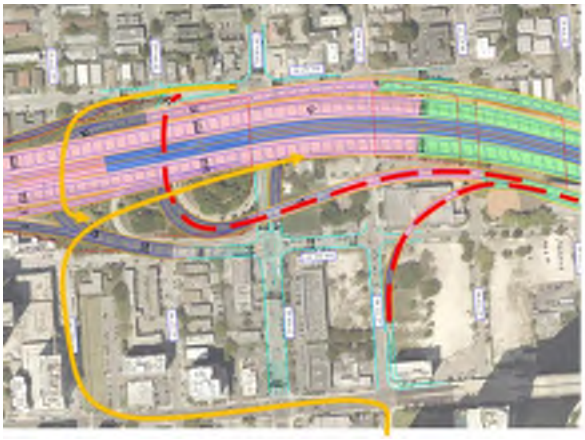
Also under Alternative 1, by adjusting some of the NB mainline ramp gore locations, the NB on-ramp from SW 8th Avenue and SW 7th Street could be braided with the NB downtown connector off-ramp. If the current design needs to be maintained with the frontage road, the SW 25th Road entrance gore can still be shifted downstream 1000 feet, which would allow the NB off-ramp to the downtown connector to be realigned (blue dashed line below). This would allow the NB on-ramp from SW 8th Avenue and SW 7th Street to merge into I-95 earlier (purple line) and reduce the need for the frontage road system between the Downtown Distributor and the SR 836/I-395 interchange. By merging the SW 8th Avenue and SW 7th Street ramps in sooner, the frontage roadway (green dashed), could be reduced as traffic will be able to merge into I-95 and then out again at I-395/SR 836 as needed.

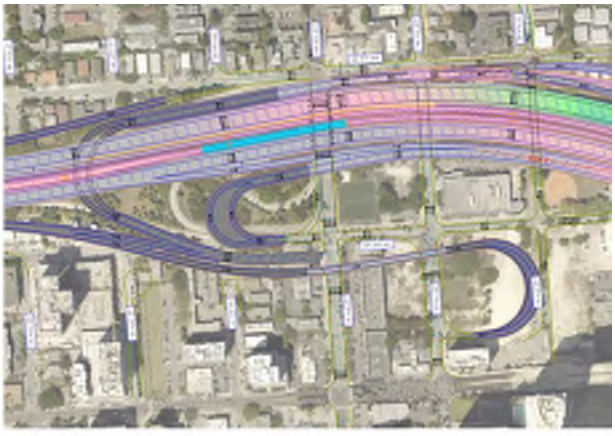
VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51

With Alternative 2, changes to the ramps gore locations and connections to reduce the distance between the exit gore and the cross street will reduce the overall impacts. If the NB I-95 off-ramp to the downtown distributor is braided under the SW 3rd Avenue on-ramps (orange line), the on-ramp could be connected to mainline I-95 before the downtown distributor interchange (red dashed). This would eliminate the need to construct a frontage roadway between SW 3rd Avenue and I-395. A new off-ramp could then be added along I-95 mainline closer to I-395 (yellow dashed line). A weave would not be introduced since the downtown distributor ramps connect on the left side of the mainline.

The final item to consider is the number of local connections south of the Miami River. Under both alternatives, multiple loop ramp connections are provided which result in significant right of way impacts. By replacing the ramps shown in red dashed below with the ramps noted in orange, the impacts could be reduced. This would also allow the ramp to tie into the mainline sooner and increase the distance between ramp gores.

VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51





Assumptions/Calculations

The anticipated cost changes with the recommended changes include:

- 25th Street to 8th Street Connection
  - 1 mile of one-lane ramp at $1.6 M per mile = $1.6 M reduction
  - Braided NB off-ramp (600 ft. x 28 ft. W) = 16,800 SF at $190 per SF = $3.2 M reduction
- Downtown Distributor to SR 836/I-395 Frontage Network:
  - 100,800 SF (2,100 ft. x 48 ft. W) of 6th level bridge at $240 per SF = $24.2 M
  - 63,000 SF (2,100 ft. x 30 ft. W) of 4th level bridge at $200 per SF = $12.6 M
  - 171,600 SF (4,400 ft. x 39 ft. Avg. W) of 3rd level bridge at $180 per SF = $30.9 M
  - 108,000 SF (2,250 ft. x 48 ft. W) of 2nd level bridge at $160 per SF = $17.3 M
- Reduce number of connections south of river (combine movements)
  - Eliminates impacts to Publix under Alt 1 = Land Value = $22.5 million
  - 50,000 SF (200 ft. x 250 ft. W) of 3rd level bridge at $180 per SF = $9 M
  - SW 7th Street connection 18,000 SF (600 ft. x 30 ft. W) of 2nd level bridge (Avg.) at $160 per SF = $ 2.9 M

Total Cost Savings = $124.2 Million

VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51

Cost Assumption:

Roadway Cost = $1.6 million per mile

2nd level Bridge Cost = $160 per SF

Additional Bridge Cost per level = $20 per SF

Bridge Level	SF Cost
2nd	$ 160
3rd	$ 180
4th	$ 200
5th	$ 220
6th	$ 240

VE Study Life-Cycle Costs Calculations

I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Quantity**	**Cost/Unit**	**Total**	**Quantity**	**Cost/Unit**	**Total**
Roadway Reconstruction - Alt 01	LM	22.6	$ 1,600,000.00	$ 36,160,000.00	22.6	$ 1,600,000.00	$ 36,160,000.00
Bridge	SF	6590635	$ 197.99	$ 1,304,879,823.65	6590635	$ 197.99	$ 1,304,879,823.65
25th Street to 8th Street Connection	LM	0	$ -	$ -	-1	$ 1,600,000.00	$ (1,600,000.00)
Braided NB off-ramp	SF	0	$ -	$ -	16800.00	$ 190.00	$ 3,192,000.00
Downtown Distributor to SR 836/I-395 Frontage Networ	SF	0	$ -	$ -	-100800.00	$ 240.00	$ (24,192,000.00)
	SF	0	$ -	$ -	-63000	$ 200.00	$ (12,600,000.00)
	SF	0	$ -	$ -	-171600	$ 180.00	$ (30,888,000.00)
	SF	0	$ -	$ -	-108000	$ 160.00	$ (17,280,000.00)
Publix Impacts	LS	1	$ 22,500,000.00	$ 22,500,000.00	0	$ -	$ -
	SF	0	$ -	$ -	-50000	$ 180.00	$ (9,000,000.00)
SW 7th St. Connection	SF	0	$ -	$ -	-18000	$ 160.00	$ (2,880,000.00)
SUBTOTAL				*$ 1,363,539,823.65*			*$ 1,245,791,823.65*
Mark-Up (MOT, Mob., CEI)	70%			$ 954,477,876.56			$ 872,054,276.56
Subtotal				**$ 2,318,017,700.21**			**$ 2,117,846,100.21**
Monetized Time Savings							$ -
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				***$ 2,318,017,700.21***			***$ 2,117,846,100.21***
COST CAPITAL SAVINGS / (INCREASE)							***$ 200,171,600.00***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				***$ 2,318,017,700.21***			***$ 2,117,846,100.21***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 200,171,600.00***

VE RECOMMENDATION NO. 7: ELIMINATE LOCAL CONNECTIONS NB	Idea Nos. 48, 48A, and 51

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations Local access could be impacted	***Rating***	**5**	**4**
	Weight	**13.8**	
	Contribution	**69**	**55.2**
Maintainability Fewer ramps and bridges	***Rating***	**5**	**6**
	Weight	**11.1**	
	Contribution	**55.5**	**66.6**
Construction Impacts Easier to construct	***Rating***	**5**	**5.5**
	Weight	**5.5**	
	Contribution	**27.5**	**30.25**
Environmental Impacts Would require less right-of-way; may not have public acceptance	***Rating***	**5**	**4**
	Weight	**17.0**	
	Contribution	**85**	**68**
Project Schedule Less right-of-way acquisition required would improve schedule	***Rating***	**5**	**6.5**
	Weight	**4.1**	
	Contribution	**20.5**	**26.65**
Access and Conflicts Eliminating CD system, gores, and weaving	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Constructible	***Rating***	**5**	**6**
	Weight	**9.7**	
	Contribution	**48.5**	**58.2**
	Total Performance	**500**	**498.9**
	Net Change in Performance		**0%**

VE RECOMMENDATION NO. 8: ELIMINATE LOCAL CONNECTIONS SB	Idea Nos. 49 and 51

Baseline Concept

Between Broadway Avenue and the SR 836/I-395 Interchange there are several ramps and collector/distributor roadway, which provide connections to local roadways. These local connections allow travels to bypass the congestion on the local network by using I-95, which saves time.

Recommendation Concept

Eliminate local connection from 3rd Court to 8th Avenue

Reduce number of connectors to downtown (combine movements)

Advantages	Disadvantages
• Improves network performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT • Reduces weaving	• Public acceptance • Local agency acceptance • Increases travel times • May increase local congestion

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$2,279,767,700		$2,279,767,700
Recommendation Concept	$2,250,464,800		$2,250,464,800
Cost Avoidance/(Added Value)	$29,302,900		$29,302,900

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓	✓	✓	✓

VE RECOMMENDATION NO. 8: ELIMINATE LOCAL CONNECTIONS SB	Idea Nos. 49 and 51

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

By improving the location network between these points traffic could be removed from I-95 which would reduce the required number of lanes. These improvements may also encourage more growth with the downtown area.

In Alternative 1, a vehicle traveling south on NW 3 Ct. has two options to get to the intersection of SW 3 Avenue and SW 8 Street. At the NW 3 Ct. and NW 2 Street on-ramp if you take the right ramp you cross the river on the frontage road at 5 level and stay up on 3 level between SW 5 Avenue and SW 9 Avenue. The roadway connects to SW 3 Avenue with a loop ramp under I-95 south of SW 8 Ave (red dashed line below). The 3 level is required due to the SB off-ramp on the south side of the bridge, which connects to SW 8 Avenue at SW 3 Avenue. The second option for vehicles on NW 3 Ct. is to take the left lane at the gore which leads you onto I-95 and then take the SB off-ramp on the south side of the river (yellow dashed line below). As shown in the graphic this creates redundant movements and adds cost and complexity to the project.

The weave distance between SB on-ramp and the SB off-ramp is approximately 1000’ which may create operational issues along the I-95 mainline. The loop ramp under I-95 south of SW 8th Avenue will also create operation issues as a weave is introduced between the loop ramp and the NB off-ramp from I-95.

One recommendation is to:

- Revise the local access roadway to connect NW 3 Ct. to SW 8 Street (yellow dashed line)
- Move the SB off-ramp downstream to the north side of the river (blue dashed line) and tied the ramp into the revised local access road (yellow dashed line)
- Braid the SB on-ramp from NW 3 Ct. under the revised off-ramp (purple line)
- Eliminate the loop ramp on the south side of SW 8 Avenue and use the proposed connection on SW 8th Avenue (green line)

VE RECOMMENDATION NO. 8: ELIMINATE LOCAL CONNECTIONS SB	Idea Nos. 49 and 51

These changes allow the bridge over the Miami River to be lowered to the same level as the mainline. It also eliminates the stacked ramps between SW 5th Street and SW 8th Avenue The traffic operations will also improve by:

- Eliminating turbulence on I-95 caused by the short weave distance proposed in the baseline concept
- Simplifies signing of the ramp movements on the mainline and the signing on the local network, reducing driver confusion
- Improves driver expectation and comfort by eliminating tight horizontal curves serving U-turn movements.

Assumptions/Calculations

The anticipated cost changes with the recommended changes include:

- NW 3 Ct. to SW 8 Street connection = no cost impacts
- Revised SB off-ramp location lowers 30,000 SF of bridge from 4th level to 3rd level at $20 per SF per level = $600,000 reduction
- Braid the SB on-ramp from NW 3 Ct. (350 LF x 46 ft.) = 16,100 SF at $190 per SF = $3.1 million increase
- Eliminate the loop ramp:
  - 1,600 LF of two-lane ramp at $1.6 per Lane Mile = $950,000 reduction
  - 120,000 SF of 3rd Level Bridge at $160.00 per SF = $19.2 million reduction

Total Cost Savings = $ 17.65 million

VE RECOMMENDATION NO. 8: ELIMINATE LOCAL CONNECTIONS SB

Idea Nos. 49 and 51

VE Study Life-Cycle Costs Calculations

I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	**Unit**	**Quantity**	**Cost/Unit**	**Total**	**Quantity**	**Cost/Unit**	**Total**
Roadway Reconstruction - Alt 01	LM	22.6	$ 1,600,000.00	$ 36,160,000.00	22.6	$ 1,600,000.00	$ 36,160,000.00
Bridge	SF	6590635	$ 197.99	$ 1,304,879,823.65	6590635	$ 197.99	$ 1,304,879,823.65
Revised SB off-ramp location	SF	0	$ -	$ -	-30000	$ 20.00	$ (600,000.00)
Braid the SB on-ramp from NW 3 Ct.	SF	0	$ -	$ -	16100.00	$ 190.00	$ 3,059,000.00
Eliminate Loop Ramp	LM	0	$ -	$ -	-0.31	$ 1,600,000.00	$ (496,000.00)
3rd Level Bridge	SF	0	$ -	$ -	-120000	$ 160.00	$ (19,200,000.00)
							$ -
							$ -
							$ -
							$ -
							$ -
SUBTOTAL				*$ 1,341,039,823.65*			*$ 1,323,802,823.65*
Mark-Up (MOT, Mob., CEI)	70%			$ 938,727,876.56			$ 926,661,976.56
Subtotal				**$ 2,279,767,700.21**			**$ 2,250,464,800.21**
Monetized Time Savings							$ -
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				***$ 2,279,767,700.21***			***$ 2,250,464,800.21***
COST CAPITAL SAVINGS / (INCREASE)							***$ 29,302,900.00***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				***$ 2,279,767,700.21***			***$ 2,250,464,800.21***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 29,302,900.00***

VE RECOMMENDATION NO. 8: ELIMINATE LOCAL CONNECTIONS SB	Idea Nos. 49 and 51

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5.5**
Improves braid; eliminates a short weave	***Weight***	**19.4**	
	Contribution	**97**	**106.7**
Local Operations	***Rating***	**5**	**6**
Reducing connections to local network	***Weight***	**13.8**	
	Contribution	**69**	**82.8**
Maintainability	***Rating***	**5**	**6**
Less to maintain; eliminating a third-level bridge	***Weight***	**11.1**	
	Contribution	**55.5**	**66.6**
Construction Impacts	***Rating***	**5**	**5**
	Weight	**5.5**	
	Contribution	**27.5**	**27.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule	***Rating***	**5**	**5**
	Weight	**4.1**	
	Contribution	**20.5**	**20.5**
Access and Conflicts Eliminating braiding ramps; reduces conflicts	***Rating***	**5**	**6**
	Weight	**19.4**	
	Contribution	**97**	**116.4**
Constructibility/MOT	***Rating***	**5**	**5**
	Weight	**9.7**	
	Contribution	**48.5**	**48.5**
Total Performance		**500**	**554**
Net Change in Performance			**11%**

VE RECOMMENDATION NO. 9: P3 PROCUREMENT PROCESS	Idea No. 13

Baseline Concept

The project is currently assumed to be delivered as a design build.

Recommendation Concept

Use P3 delivery method.

Advantages	Disadvantages
• Brings together department (public) and contractor (private) skills and assets with shared goal of completing project. • Faster “planning” to “completed” project delivery. • Meet road capacity demands quicker. • Advancing project means using earlier roadway density models, potential for more MOT flexibility. • Cash flow benefits to Department.(Know annual payments / fixed for a long period of time) • Allows for funding of other projects. • Fewer project segmentation means shorter overall construction duration. • Fewer project segmentation means reduced and streamlined contract management. • Fewer project segmentation means more control over construction overlap and reduced impact to motorists and general public. • Letting the project as one contract reduces the construction of connecting roadway/structures between segments.	• Less Departmental control during design process. • Limited Contractor availability for large scale P3. (use of subs) • Fewer Contractor availability means less competitiveness and potential higher cost. • Fewer local design and contractors will have opportunity to participate.

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept			
Recommendation Concept	Not quantifiable		
Cost Avoidance/(Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	

VE RECOMMENDATION NO. 9: P3 PROCUREMENT PROCESS	Idea No. 13

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Traditional design-bid-build delivery methods for a large project of this complexity and scope are not feasible. The design-build delivery method is another familiar option to consider but also has limitations; therefore, the VE team recommends using the P3 procurement process.

One of the main factors in P3 delivery is that it brings together the skills and assets of each sector (public and private) to share in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risk and reward potential in the delivery of the service and/or facility. The Department can advance projects programmed in the adopted 5-year work program or projects increasing transportation capacity and greater than $500 million in the 10-year Strategic Intermodal Plan http://www.fdot.gov/planning/sis/using funds provided by P3s or private entities to be reimbursed from Department funds for the project as programmed in the adopted work program. The most common P3 project procurement types are design-build-finance (DBF) and design-build-finance-operate-maintain (DBFOM) with DBFOM being the suggested type. Examples of previously completed P3 projects are noted below.

District 6: Port Miami Tunnel (DBFOM, FM No. 251156-3-52/82) – Under Op's. Phase. This project widened the MacArthur Causeway Bridge and constructed a tunnel to provide a direct highway connection to the Port of Miami on Dodge Island from Watson Island. The contract is a 35-year concession agreement that was executed October 15, 2009 with MAT Concessionaire, LLC. The tunnel opened to traffic on August 3, 2014 and the concessionaire is earning annual performance-based availability payments during the 30-year operations and maintenance period. The project was completed on November 7, 2014. The capital cost was $667 million.

District 4: I-595 Improvements (DBFOM, FM Nos. 420809-3-5A/52/82 and 420809-8-52) – Under Op's. Phase. This project included operational improvements to the I-595 corridor and the addition of three at grade reversible tolled express lanes in the median. The contract is a 35-year concession agreement that was executed March 3, 2009 with I-595 Express, LLC (concessionaire). The facility opened to traffic in March 2014 and was completed on September 5, 2014. The concessionaire is earning annual performance-based availability payments during the 30-year operations and maintenance period. The capital cost was $1.2 billion.

District 5: I-4 Ultimate in Orange and Seminole Counties (DBFOM, FM No. 432193-1) – Under Construction Phase. This project provides the I-4 ultimate improvements for approximately 21 miles from Kirkman Road in Orange County to SR 434 in Seminole County. The project alleviates congestion by adding two Express Lanes in each direction and by improving access to and from the interstate. There are numerous bridge replacements and major reconstruction at multiple interchanges including SR 434, SR 436, Maitland Blvd, SR 50, US 441, SR 408, and Kirkman Road. The contract is a 40-year concession agreement with the concessionaire earning payments during construction, final acceptance payments following construction, and annual performance-based availability payments during the operations and maintenance period. A contract with I-4 Mobility FDOT Public-Private Partnership Projects May 2018 DBF: Design-Build-Finance BF: Build-Finance DBFOM: Design-Build-Finance-Operate-Maintain 2 Partners was executed September 4, 2014. The expected completion date is March 2021. The estimated design and construction cost is $2.3 billion.

VE RECOMMENDATION NO. 9: P3 PROCUREMENT PROCESS	Idea No. 13

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability Potential for more MOT flexibility	***Rating***	**5**	**6**
	Weight	**11.1**	
	Contribution	**55.5**	**66.6**
Construction Impacts Reduces the construction of connecting roadway/structures between segments	***Rating***	**5**	**7**
	Weight	**5.5**	
	Contribution	**27.5**	**38.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule Fewer project segmentation means shorter overall construction dduration	***Rating***	**5**	**8**
	Weight	**4.1**	
	Contribution	**20.5**	**32.8**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Mover control over construction overlap and reduced impact to motorists and general public	***Rating***	**5**	**7**
	Weight	**9.7**	
	Contribution	**48.5**	**67.9**
	Total Performance	**500**	**553.8**
	Net Change in Performance		**11%**

VE RECOMMENDATION NO. 10: 4D RENDERING	Idea No. 75

Baseline Concept

There are currently two baseline concepts: Alternative 1 consists of stacking the mainline express lanes over the general purpose lanes for the majority of the corridor. Alternative 2 is a concept designed to minimize the elevated structures by putting the mainline express lanes and general purpose lanes on the same level and widening to the sides. Both alternatives were sketched using MicroStation tools.

Recommendation Concept

Create 4D rendering of both alternatives.

Advantages	Disadvantages
• Provides construction phasing and constructibility • Improves constructibility potential • Potentially improves quantity calculations • Optimized construction phasing • Improves public understanding and buy-in • Reduces doubt	• Increased design cost

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	0		0
Recommendation Concept	$255,750		$255,750
Cost Avoidance/(Added Value)	($255,750)		($255,750)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	

VE RECOMMENDATION NO. 10: 4D RENDERING	Idea No. 75

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

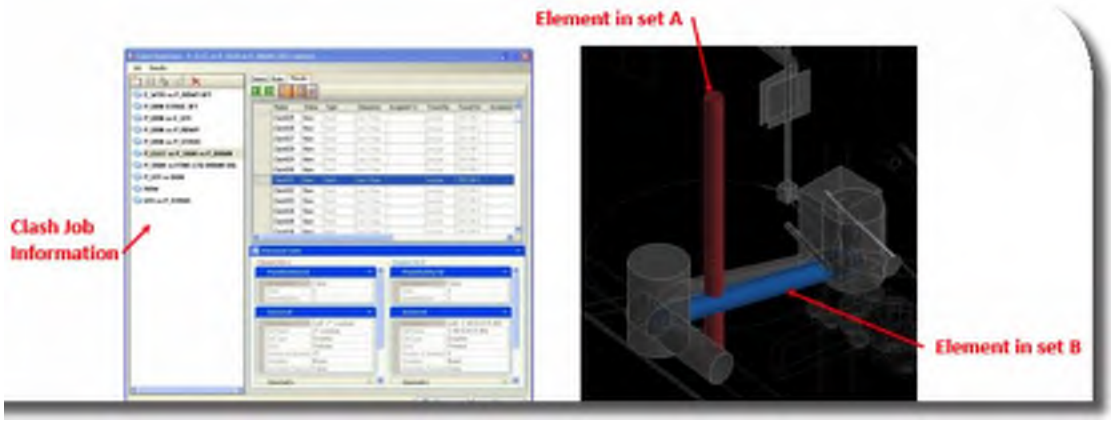
Both alternatives were designed using MicroStation design. While the traditional approach of designing a project using 2D is the most cost effective alternative, utilizing a 4D modeling technology will result in savings to the project.

The term 4D simulation is used to describe the linking of a 3D design drawing with the related construction activities in the project schedule. In a large scale complicated project like this, spending more money on the design phase will pay off in the end by utilizing technology to simulate construction and identify any conflicts before construction begins. 4D modeling technology results in construction savings by providing the following:

- Allows for clash detection, which is the process that identifies any conflicts between two elements in a model occupying the same space.
- Provides the capability of reviewing various proof of concepts and validate construction sequencing to determine the most appropriate solution to building the project.
- Allows stakeholders to look at a specific schedule activity and the system takes them directly to the area that is being built.
- Allows for more accurate quantity takeoffs

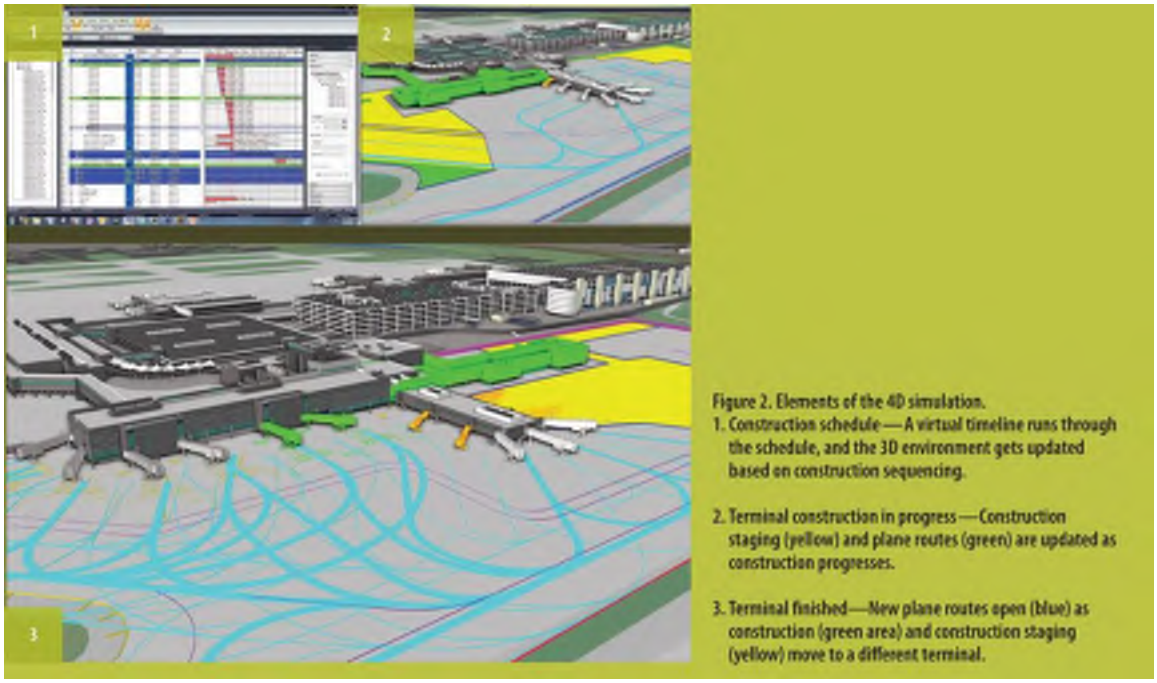
Utilizing 4D modeling technology will offer savings through greater accuracy, efficiency, and reduced resource cost.

Figure : Potential Conflicts



VE RECOMMENDATION NO. 10: 4D RENDERING	Idea No. 75

Figure: 4D Ft Lauderdale International Airport - Terminal 4



Assumptions/Calculations

- An average of 35 hours per mile was used for the 3D design model.
- A total of 6 weeks was used to estimate the time required to develop a schedule and integrate it to the 3D model.
- An estimated length of 17.5 miles was used for the project using Google Earth measuring tools.
- An hourly cost of $150.00 was assumed for cost related calculations
- Total Cost for 4D Modeling both alternatives = 2 * [(240 hr * 150$/hr) + (17.5 mi * 35 hr/mi * 150$/hr)] = $255,750

VE RECOMMENDATION NO. 10: 4D RENDERING	Idea No. 75

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability	***Rating***	**5**	**5**
	Weight	**11.1**	
	Contribution	**55.5**	**55.5**
Construction Impacts	***Rating***	**5**	**5**
	Weight	**5.5**	
	Contribution	**27.5**	**27.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule Would improve planning/timing for project schedule	***Rating***	**5**	**5.5**
	Weight	**4.1**	
	Contribution	**20.5**	**22.55**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Visual representation of construction sequencing would help staging and MOT	***Rating***	**5**	**6**
	Weight	**9.7**	
	Contribution	**48.5**	**58.2**
	Total Performance	**500**	**511.75**
	Net Change in Performance		**2%**

VE RECOMMENDATION NO. 11: MAINTAIN THIRD LEVEL AT GRATIGNY	Idea No. 73

Baseline Concept

Alternative 1 baseline concept consists of a 2-level typical section, where the mainline express lanes are stacked over the general purpose lanes for the majority of the corridor.

Recommendation Concept

The proposed improvement consists of maintaining the mainline at third level at Gratigny interchange and make flyovers fourth level.

Advantages	Disadvantages
• Lower mainline bridge • Reduces structure height • Reduces cost • Improves MOT	• Requires coordination with MDX • Interim touch-down points will be very high • Requires pre-planning for future compatibility

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$57,900,000		$57,900,000
Recommendation Concept	$55,200,000		$55,200,000
Cost Avoidance/(Added Value)	$2,700,000		$2,700,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	

VE RECOMMENDATION NO. 11: MAINTAIN THIRD LEVEL AT GRATIGNY	Idea No. 73

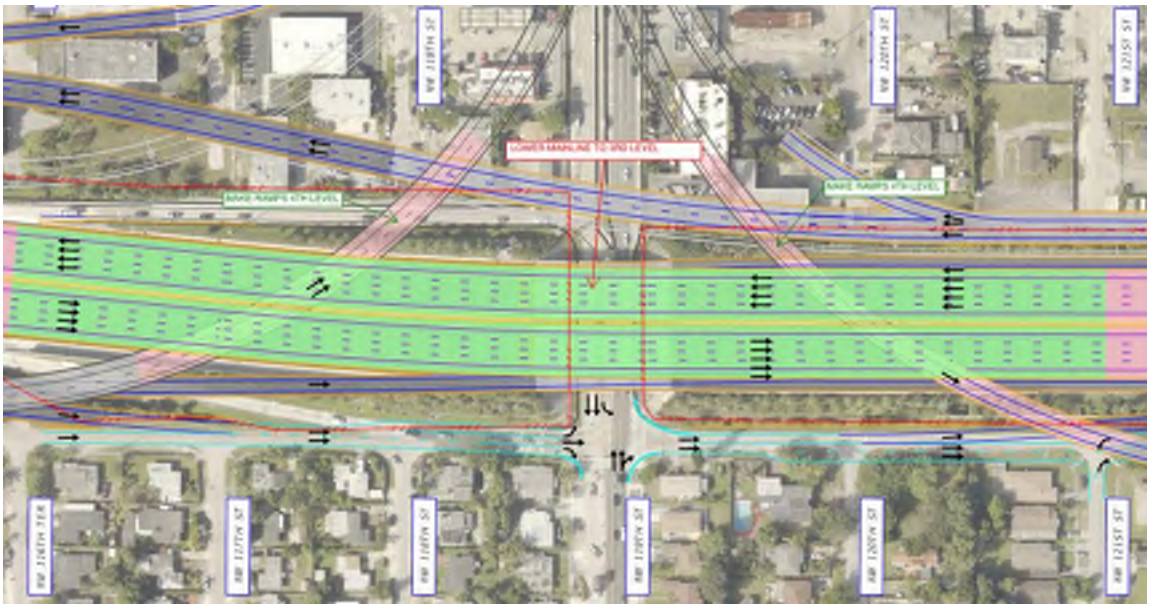
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The proposed Alternative 1 typical section maintains the express lanes over the general purpose lanes for the majority of the corridor. A general approach of the concept design at the interchanges is to raise the mainline and express lanes to go over all the ramps at the interchanges.

One of the improvements that would significantly reduce the bridge cost and facilitate maintenance of traffic is to lower the mainline bridge from a level 4 to a level 3. The two ramps that are currently going under the express lanes (northbound NW 103rd Street to NW 119th Street westbound and eastbound NW 119th Street to I-95 northbound) at level 3 can be raised to level 4. The bridge widths on both ramps are significantly smaller when compared to the mainline (one and two lane bridges vs. eight lane bridge on mainline). Even with the ramp lengths resulting in longer bridges because of tie-downs, building lower express lanes would decrease the overall cost. Additionally, taking the ramps over will improve the geometrics because the ramps have lower design speeds than the mainline.

It is preferred, for both construction simplicity and cost savings, to build the more simple structures at a higher level.



Assumptions/Calculations

- The assumed MOT for the original concept for Alternative 1 has not been provided. The same MOT cost was assumed for the revised alternative.
- All measurements were taken from the PDF file; no CADD files were provided.
- Shoulder widths measured in the PDF (12-foot inside shoulders and 6-foot outside shoulders) used for cost calculations do not meet the standard shoulder width criteria:
    - Two lane ramp: 10-foot outside and 8-foot inside shoulders.
    - One lane ramp: 6-foot shoulders

VE RECOMMENDATION NO. 11: MAINTAIN THIRD LEVEL AT GRATIGNY	Idea No. 73

- A unit cost of $220/SF was assumed for the steel bridge at 3rd level. A difference of $20.00 was added/subtracted for every level.
- A total unit cost of $180.00/SF was assumed for a 4th level concrete simple span bridge (express lanes). A difference of $20.00 was added/subtracted for every level.
- Total Area of express lanes = 146*1500=219,000 SF
- Total Area of the two lane ramp NB NW 103rd ST to NW 119th St WB = 42*1056= 50,400 SF. A total of 500 feet was added to the length of the bridge due to longer tie-downs.
- Total area of the single lane ramp EB NW 119th ST to I-95 NB = 33*1200 = 39,600 SF. A total of 500 feet was added to the length of the bridge due to longer tie-downs.
- Baseline cost = 219,000 SF* 180($/SF) + 84,000 SF * 220 ($/SF) = $57,900,000
- Recommended alternative cost = 219,000 SF* 160($/SF) + 84,000 SF * 240 ($/SF) = $55,200,000
- Cost savings from baseline to recommended = $2,700,000
- Percentage total cost savings = 2,700,000/57,900,000=0.05

VE RECOMMENDATION NO. 11: MAINTAIN THIRD LEVEL AT GRATIGNY	Idea No. 73

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability Easier to maintain	***Rating***	**5**	**6**
	Weight	**11.1**	
	Contribution	**55.5**	**66.6**
Construction Impacts	***Rating***	**5**	**5**
	Weight	**5.5**	
	Contribution	**27.5**	**27.5**
Environmental Impacts	***Rating***	**5**	**5**
	Weight	**17.0**	
	Contribution	**85**	**85**
Project Schedule Fewer structures to cast	***Rating***	**5**	**5.5**
	Weight	**4.1**	
	Contribution	**20.5**	**22.55**
Access and Conflicts Tie-downs will be further out	***Rating***	**5**	**4**
	Weight	**19.4**	
	Contribution	**97**	**77.6**
Constructibility/MOT Three-level bridge vs. six-level	***Rating***	**5**	**7**
	Weight	**9.7**	
	Contribution	**48.5**	**67.9**
	Total Performance	**500**	**513.15**
	Net Change in Performance		**3%**

VE RECOMMENDATION NO. 12: REALIGN I-95 IN SEGMENT 1	Idea No. 76

Baseline Concept

For the roadway alignment of both baseline concept alternatives 1 and 2, the I-95 proposed mainline in segment 1 between the downtown connector interchange and the I-395 interchange crosses from east to west over the existing alignment at a very shallow angle as the alignment progresses to the north.

Recommendation Concept

Adjust the alignment to avoid crossover of the existing I-95 mainline between the downtown connector and I-395 and instead runs in a parallel partially offset alignment to the existing I-95 mainline.

Advantages	Disadvantages
• Simplifies construction • Reduces long span structures • Simplifies MOT • Reduces impact on existing traffic • Reduces cost	• Increases right-of-way acquisition • Potentially more structures for ramp connections

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$27,200,000	-	$27,200,000
Recommendation Concept	-	$4,400,000	$4,400,000
Cost Avoidance/(Added Value)	$27,200,000	$(4,400,000)	$22,800,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓		✓	

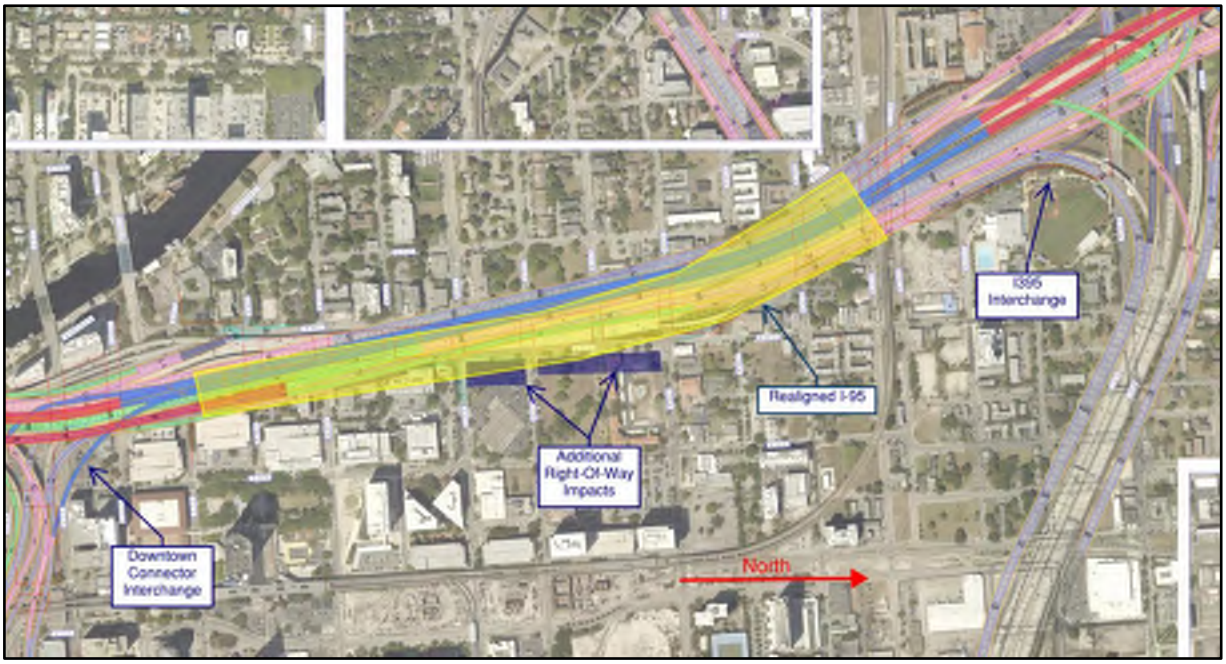
VE RECOMMENDATION NO. 12: REALIGN I-95 IN SEGMENT 1	Idea No. 76

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The two baseline concept alternatives require the existing I-95 mainline to be crossed at a very shallow angle in segment 1 between the downtown connector interchange and the I395 interchange. The proposed alignment for the I-95 mainline crosses from east to west over the existing I-95 as the alignment progresses from south to north. In order to maintain existing traffic on I-95 the proposed structures would need to cross with very long spans and difficult support conditions due to the width of existing I-95. It is recommended to adjust the proposed alignment to run parallel to the existing I-95 mainline alignment with a small offset to allow the construction of a portion of the proposed structures without significant impact to the existing traffic. This would allow progressive traffic shifts to clear room for demolition of existing and construction of proposed structures. The recommended concept shown in Figure is to offset the alignment to the east and progress in stages to the west. The concept is compared to Alternative 1 and it can be seen that minimal additional right-of-way impacts occur but the construction and MOT is greatly simplified since there is no need to cross existing I-95. There are additional impacts to buildings to the east from the downtown connector to NW 5th Street but these buildings are already impacted by the baseline concept. North of NW 5th Street an additional 3 parcels are impacted by the re-alignment that were not previously impacted in baseline alternative 1. The costs of the additional parcels taken for right-of-way should be easily offset by the reduction in cost of structures since it is no longer necessary to cross I-95 and additionally there should be costs recovered from the simplified MOT.

Figure: Segment 1 with I-95 Mainline Realignment



VE RECOMMENDATION NO. 12: REALIGN I-95 IN SEGMENT 1	Idea No. 76

Assumptions/Calculations

- The assumed MOT and phased construction required in the baseline concept has not been provided. It is assumed that in order to cross the existing I-95 and maintain traffic that long span structures with complicated support conditions are required.
- It is assumed that the parcels impacted in the baseline concepts are whole takes and additional impacts to these parcels does not affect the right-of-way requirements.
- It is assumed the realignment will maintain the same roadway design requirements as the baseline concept.
- 1 commercial parcel is impacted at $3.4M and 2 residential parcels are impacted at $500K for a total increase in right-of-way of $4.4M. However, there may be some savings on the west side of I-95 by shifting ramps east and reducing some R/W requirements.
- Details for the crossing of existing I-95 are not provided. It is assumed 1000’ of long span structures will be required. Based on the baseline alternative 1 typical section the express lanes have a cross section 44.67’ wide and the general purpose lanes have a cross section 86.67’ wide. The total square feet of long span bridge required is 262,680 SF. A cost increase of $40/SF for long span bridge structures over FIB structures is assumed. The total cost increase of structures of the baseline concept over the recommended concept is (262,680 SF)($40/SF) = $10.5M.
- It is assumed that a significant reduction in MOT can be realized since the new alignment will be built in parallel to the existing rather than crossing it. A 10% reduction in MOT costs is assumed for segment 1. The baseline concept shows a 10% MOT multiplier for a total of $166,794,000 for segment 1 MOT. The 10% reduction in MOT is $16.7M.

VE RECOMMENDATION NO. 12: REALIGN I-95 IN SEGMENT 1	Idea No. 76

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Local Operations	***Rating***	**5**	**5**
	Weight	**13.8**	
	Contribution	**69**	**69**
Maintainability	***Rating***	**5**	**5**
	Weight	**11.1**	
	Contribution	**55.5**	**55.5**
Construction Impacts	***Rating***	**5**	**5**
	Weight	**5.5**	
	Contribution	**27.5**	**27.5**
Environmental Impacts May impact additional R/W by extending the landing points of ramps at Gratigny	***Rating***	**5**	**4.5**
	Weight	**17.0**	
	Contribution	**85**	**76.5**
Project Schedule Lower mainline to third level Simplifies schedule; fewer temporary connections	***Rating***	**5**	**5.5**
	Weight	**4.1**	
	Contribution	**20.5**	**22.55**
Access and Conflicts	***Rating***	**5**	**5**
	Weight	**19.4**	
	Contribution	**97**	**97**
Constructibility/MOT Lower mainline to third level	***Rating***	**5**	**5.5**
	Weight	**9.7**	
	Contribution	**48.5**	**53.35**
	Total Performance	**500**	**498.4**
	Net Change in Performance		**0%**

VE RECOMMENDATION NO. 13: PUBLIC OUTREACH	Idea No. 42

Baseline Concept

Public Information Office activities are needed at difference stages of project development. Utilize both the in-house public outreach team and consultants to market this project.

Recommendation Concept

Procure high-end, cutting edge technology public relation experts to help FDOT market the project and be the face of the project.

Advantages	Disadvantages
• Alerts the public • Provides information early • Reach ultimate goal of gaining buy-ins from the public • More effective communication with the public • Have a point-of-contact for the public during PD&E, design and construction phases • Actively and effectively address public comments/complaints on a timely manner • Actively involve the community	• Labor intensive • Increases cost • Additional coordination • Potential schedule impact • Earlier questions and connects will require earlier availability of answers

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept			
Recommendation Concept	$8,000,000		$8,000,000
Cost Avoidance/(Added Value)	($8,000,000)		($8,000,000)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
		✓	✓	

VE RECOMMENDATION NO. 13: PUBLIC OUTREACH	Idea No. 42

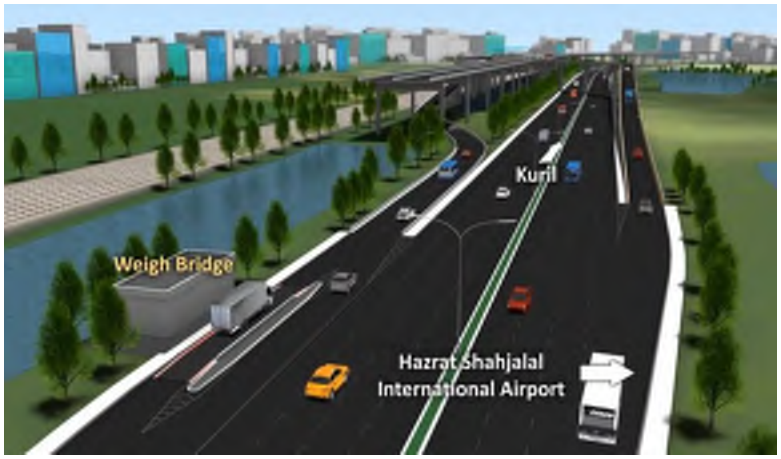
Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

I -95 is a heavily traveled and highly congested corridor. Major construction activities will disrupt the traffic flow. In addition, the I-95 corridor traverses many local municipalities. Early coordination with local agencies, stakeholders, and local communities is paramount to maintain a positive relationship with the motorists and communities within the district. To accomplish this goal, extensive public outreach activities are very important to the successful completion of this project.

The following are recommendations to be performed as part of the public outreach:

- Hire a top-ranked PR firm to facilitate public outreach activities, including developing a branding/signature campaign marketing and advertising (with staff with scientific/technical communication skills).
- Designate media spokesperson and related media communications.
- Perform customer surveys.
- Issue tracking, and crisis communications.
- Prepare 3-D models of the various concepts to show to public; drive-through videos would also help.



- Explore the potential financial contribution to the effected communities for their own reserve fund/beautification projects.
- Explore “noise” demonstration (loud now, loud after, and with noise walls) to demonstrate the noise level.
- Newsletter and feature story writing. Translation and printing services.
- Project Website:
  - Use a project website to potentially accept public comments shared online (after review and acceptance), so everyone can see both positive and negative comments, to show transparency

VE RECOMMENDATION NO. 13: PUBLIC OUTREACH	Idea No. 42

- Public Meetings:
  - Have the “what would it take” conversations, with each community group
  - Solicit comments prior to the meetings so the right people can be in the room
  - Practice the informative presentations with middle/high school kids and get questions and ensure plain language is used
  - Research increase/decrease in home values over the years relative to regional freeway accesses, and share information with residents
- Public Workshop:
  - Have a clear agenda/program/schedule of events (where to go first, what to expect at which station)
  - Communicate the same “messages” to all of the FDOT/consultant staff, and assign the right person(s) for certain type of questions

Assumptions/Calculations

The estimated cost for the Public Information Office services used I-395 project as a sample, which is approximately 500,000 dollars/year. Considering the length of the I-95 corridor, the VE team considered 1,000,000 per year was a reasonable estimate. The project baseline schedule is 60 months for construction and 3 years for preliminary engineering, then assume 8 years @ $1M each for a total value added of $8 million.

VE RECOMMENDATION NO. 13: PUBLIC OUTREACH	Idea No. 42

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations	*Rating*	5	5
	Weight	19.4	
	Contribution	97	97
Local Operations	*Rating*	5	5
	Weight	13.8	
	Contribution	69	69
Maintainability	*Rating*	5	5
	Weight	11.1	
	Contribution	55.5	55.5
Construction Impacts	*Rating*	5	5
	Weight	5.5	
	Contribution	27.5	27.5
Environmental Impacts Increased likelihood of public acceptance	*Rating*	5	7
	Weight	17.0	
	Contribution	85	119
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts	*Rating*	5	5
	Weight	19.4	
	Contribution	97	97
Constructibility/MOT	*Rating*	5	5.5
	Weight	9.7	
	Contribution	48.5	53.35
	Total Performance	500	538.85
	Net Change in Performance		8%

VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

Baseline Concept

The existing I-95 and downtown distributor interchange includes six ramps to provide access to and from S. Miami Ave and NE 2nd Avenue/Brickell Avenue northbound and southbound access is provided to from both roadways in the existing conditions. The two alternative developed maintain northbound and southbound access from both roadways to and from I-95. The alternatives also add access to the express lanes, which add additional ramps to this area.

Recommendation Concept

Tie in express and general purpose ramps to consolidate distributors (#52)

Eliminate general purpose lanes into downtown (make express lanes only); improve local access network to downtown (#53)

Use local network to distribute traffic between express lanes and general use lanes (and south and north) to reduce redundant movements (#68)

Advantages	Disadvantages
• Simplifies connection to downtown connectors • Reduces the number of ramps • Simplifies signing • Reduces driver confusion • Increases demand processed by local network and ramps • Reduces weaving	• Removes existing movements • Public acceptance • May increase local congestion • May increase travel times

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$52,985,702	-	$52,985,702
Recommendation Concept	$38,072,400	-	$38,072,400
Cost Avoidance/(Added Value)	$14,913,302	-	14,913,302

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓		✓	

VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

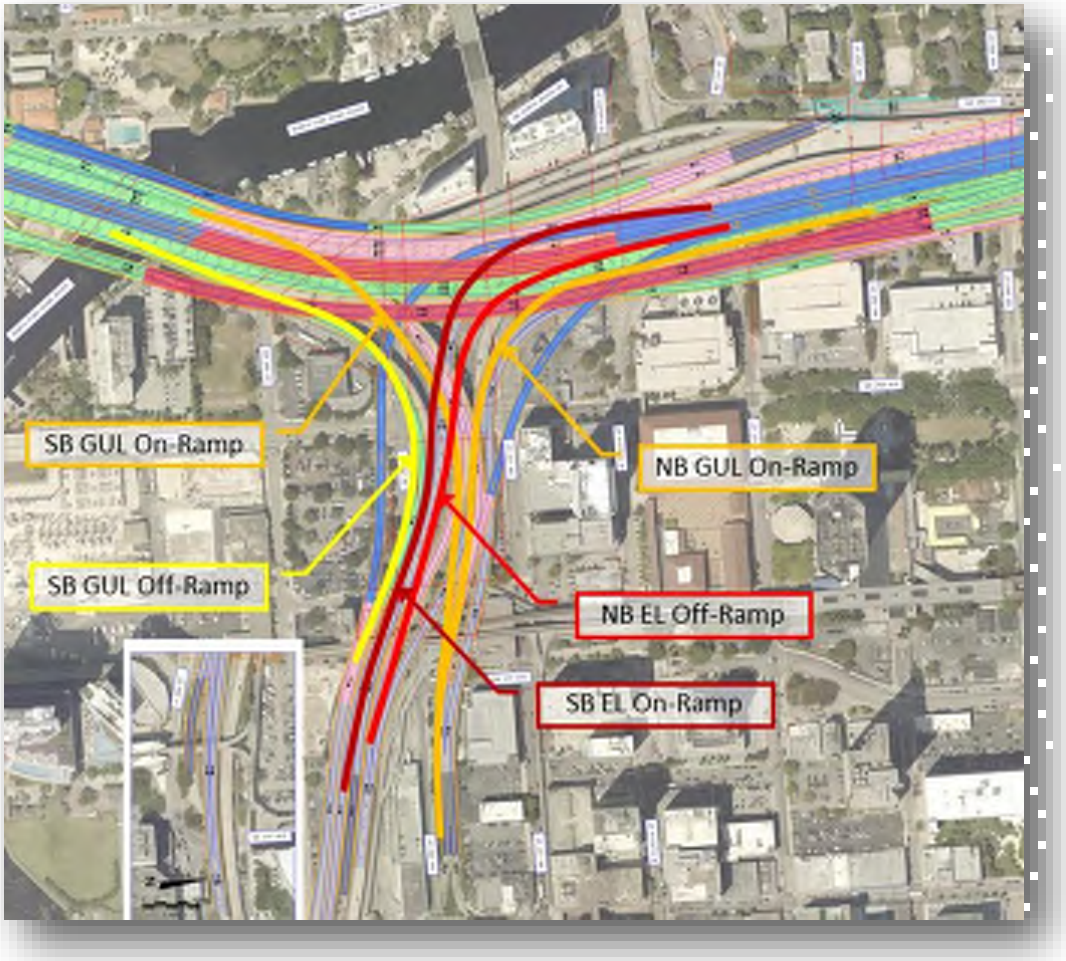
The local roadway network within the downtown core provides opportunities to reduce the number of ramps connecting to I-95. The distance from the I-95 entrance ramp from NE 2nd Avenue/Brickell Avenue to the I-95 entrance ramp on S. Miami Avenue is approximately 1,300 feet. Also, the I-95 exit ramps connect to SE 1st Avenue and SE 3rd Avenue, are also separated by approximately 1,300 feet.

The 2045 demand traffic and the volumes the Vissim model was able to process through the network due to the constraints placed on the network at the local inputs were validated during this study. Based on the SERPM demand model and the Vissim simulation model of the concept, the local network will be unable to process the demand to/from I-95 during the peak periods. This will result in latent demand and extend the peak hour congestion. By improving and optimizing the local network and the ramps to/from I-95, the local network will be able to serve more of the demand traffic, thus reducing the congestion and improving the travel times during the peak periods. It should be noted that during the PD&E stage for this project, all off-ramps need to be analyzed to ensure spillback onto I-95 does not occur during the peak periods. This may require the service interchanges shown in this project to be modified or redesigned appropriately to serve the demand traffic from the off ramps.

The VE recommendations include using the existing connections points on S. Miami Avenue, NE 2nd Avenue/Brickell Avenue, SE 1st Avenue and SE 3rd Avenue to separate traffic. The connections can either be divided to serve northbound and southbound I-95 or the express lanes and general use lane connections. This would reduce the number of ramps and gore points within this area. It would also increase the spacing between gore points for signing.

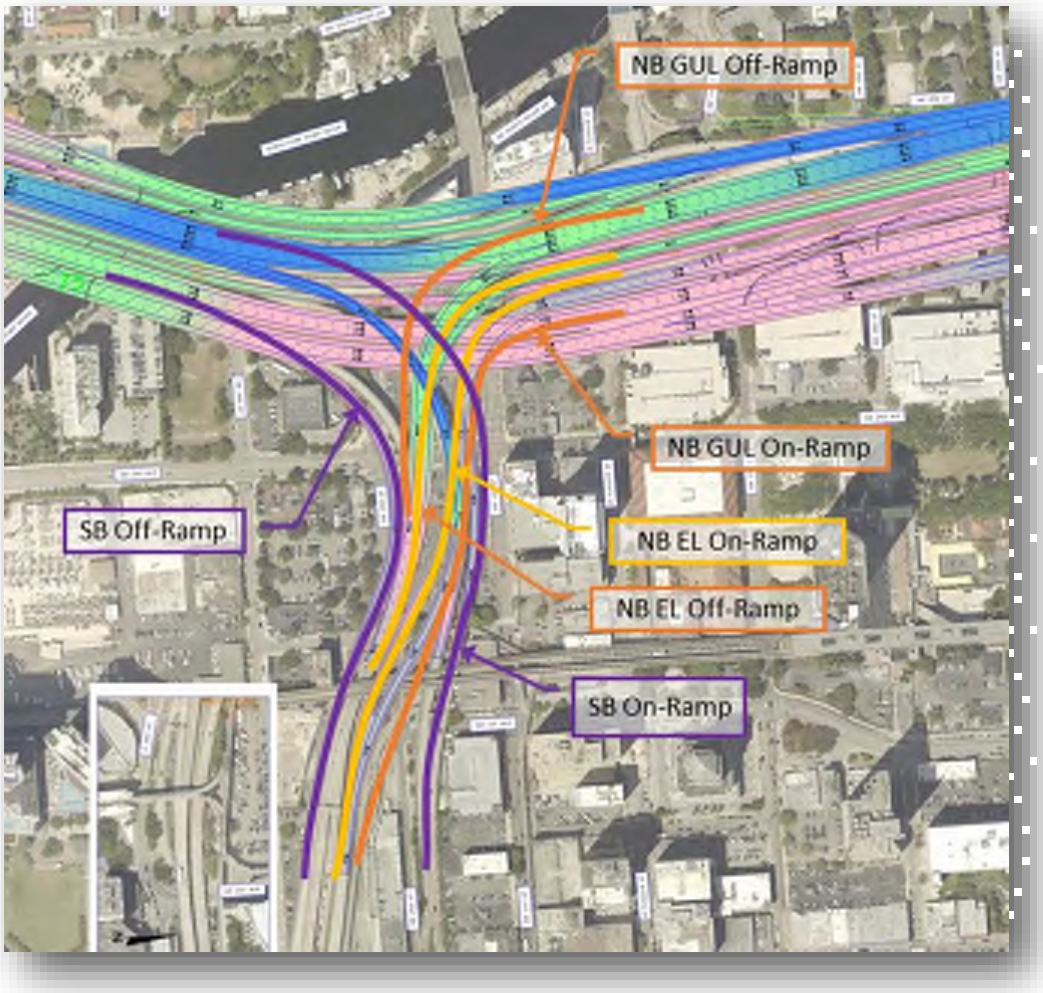
VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

The image below shows one option for connecting the general use lanes to S. Miami Avenue and SE 1st Avenue and the express lanes connecting to the downtown distributor (NE 2nd Avenue/Brickell Avenue and SE 3rd Avenue).



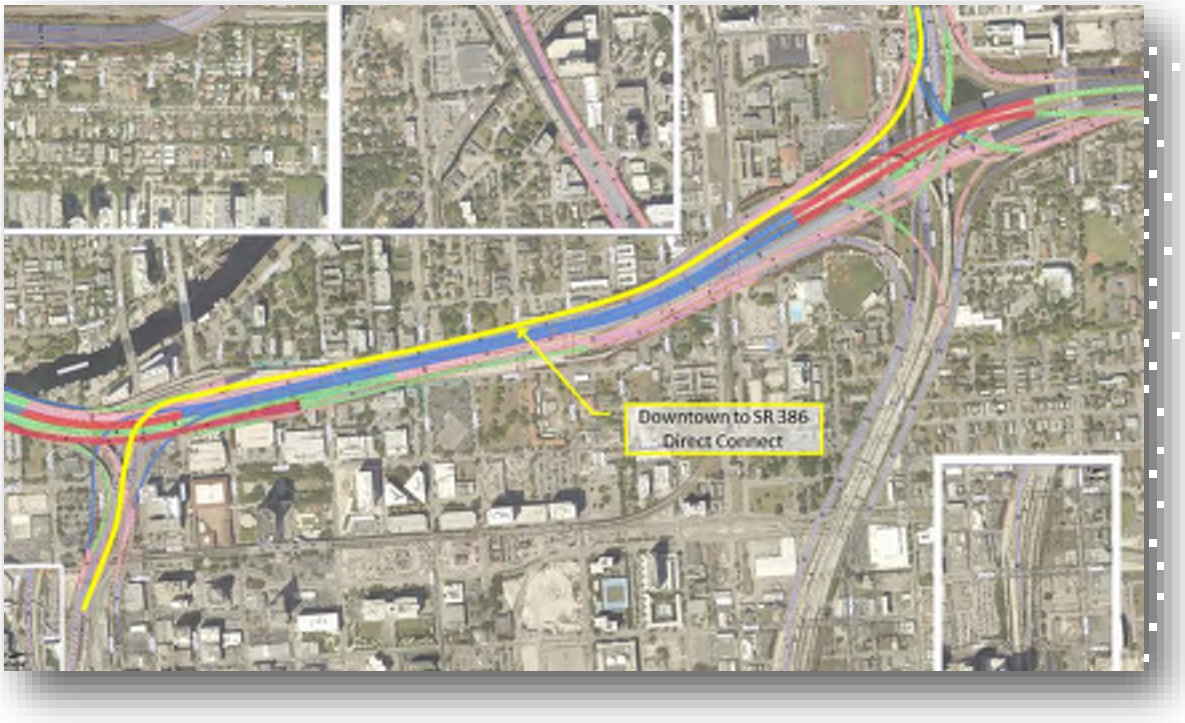
VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

A second option of using the local roadways for northbound and southbound access is shown below on Alternative 2.



VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

Another recommendation is to provide a direct link between the downtown distributor and SR 836. Based on the traffic information, this movement is very heavy. By making a direct link to between the roadways, the volumes, and required ramps along I-95 would be reduced.



Assumptions/Calculations

It is assumed any modifications to the local network to reconfigure the downtown distributor ramps to better serve the demand traffic will be implemented.

For the purpose to quantify the cost savings of consolidating Downtown Distributor ramps, it is assumed the redundant ramps proposed in the baseline are eliminated. The geometric modifications and lane configuration of the Downtown Distributor ramps required is assumed to occur during the PD&E stage.

VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

Cost Savings Calculation

VE Study Life-Cycle Costs Calculations
I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	Unit	Quantity	Cost/Unit	Total	Quantity	Cost/Unit	Total
Downtown On-Ramp to I-95 SB	1	1	$4,966,731.07	$ 4,966,731.07	0	$4,966,731.07	$ -
I-95 SB Off-Ramp to Downtown	1	1	$9,281,937.49	$ 9,281,937.49	1	$9,281,937.49	$ 9,281,937.49
Downtown On-Ramp to I-95 SB	1	1	$4,424,090.15	$ 4,424,090.15	1	$4,424,090.15	$ 4,424,090.15
Downtown On-Ramp to I-95 SB	1	1	$1,077,350.80	$ 1,077,350.80	1	$1,077,350.80	$ 1,077,350.80
Downtown On-Ramp to I-95 SB & I-95 NB Express	1	1	$4,322,250.55	$ 4,322,250.55	0	$4,322,250.55	$ -
Downtown On-Ramp to I-95 NB & NB Express	1	1	$1,840,349.38	$ 1,840,349.38	0	$1,840,349.38	$ -
Downtown On-Ramp to I-95 NB Express	1	1	$6,350,184.40	$ 6,350,184.40	1	$6,350,184.40	$ 6,350,184.40
I-95 NB Off-Ramp to NE 5th St	1	1	$4,543,092.08	$ 4,543,092.08	1	$4,543,092.08	$ 4,543,092.08
I-95 NB Off-Ramp to NE 5th St	1	1	$2,735,582.92	$ 2,735,582.92	1	$2,735,582.92	$ 2,735,582.92
SUBTOTAL				$ *39,541,568.84*			$ *28,412,237.84*
Mark-Up (MOT, Mob., CEI)	34%			$ 13,444,133.41			$ 9,660,160.87
Subtotal				$ **52,985,702.25**			$ **38,072,398.71**
Monetized Time Savings							$ -
Right of Way Costs				$ -			$ -
Additional PE Costs				$ -			$ -
TOTAL CAPITAL COST				$ ***52,985,702.25***			$ ***38,072,398.71***
COST CAPITAL SAVINGS / (INCREASE)							$ ***14,913,303.54***
Operations	Cycle			$ -			$ -
Maintenance Costs	Cycle			$ -			$ -
TOTAL LIFECYCLE COSTS				$ ***52,985,702.25***			$ ***38,072,398.71***
COST LIFECYCLE SAVINGS / (INCREASE)							$ ***14,913,303.54***

VE RECOMMENDATION NO. 14: SEPARATE DOWNTOWN DISTRIBUTOR CONNECTIONS	Idea Nos. 52, 53, and 68

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations Reduces weaving; reduces the number of ramps	*Rating*	5	6
	Weight	19.4	
	Contribution	97	116.4
Local Operations Simplifies connection to downtown connectors	*Rating*	5	6
	Weight	13.8	
	Contribution	69	82.8
Maintainability Would require maintaining fewer bridges	*Rating*	5	6
	Weight	11.1	
	Contribution	55.5	66.6
Construction Impacts More temporary closures and detours	*Rating*	5	4.5
	Weight	5.5	
	Contribution	27.5	24.75
Environmental Impacts	*Rating*	5	5
	Weight	17.0	
	Contribution	85	85
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts Reduces driver confusion; no longer short weaving issues	*Rating*	5	6
	Weight	19.4	
	Contribution	97	116.4
Constructibility/MOT Fewer ramps; however, urban core may be difficult to construct	*Rating*	5	5
	Weight	9.7	
	Contribution	48.5	48.5
Total Performance		500	560.95
Net Change in Performance			12%

VE RECOMMENDATION NO. 15: IMPROVE LOCAL ROADWAYS	Idea Nos. 50, 54, and 69

Baseline Concept

The baseline does include interchange improvements or modifications and minor improvements to local roadways to accommodate the concept design and to tie into existing conditions. The baseline does not include improvements to the local network adjacent to I-95 beyond the concept design footprint.

Recommendation Concept

Improve local roadways (i.e., Brickell Avenue and South Miami Avenue) to alleviate traffic off of I-95

Use additional one-way pairs or modify existing one-way streets where feasible downtown

Advantages	Disadvantages
• Improves network and local road performance • May pull traffic off the interstate • Reduces footprint • Reduces cost • Improves MOT	• Public acceptance • Local agency acceptance

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$0	$0	$0
Recommendation Concept	$3,500,000	$0	$3,500,000
Cost Avoidance/(Added Value)	($3,500,000)	$0	($3,500,000)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓			

VE RECOMMENDATION NO. 15: IMPROVE LOCAL ROADWAYS	Idea Nos. 50, 54, and 69

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Improving the downtown local roadway network will reduce congestion and better serve the demand volume onto I-95. It is recommended to partner with local agencies to analyze and implement converting the downtown local roadway network into one-way pairs or modify and improve the existing one-way street operations. By implementing one-way pairs downtown and in conjunction with the ITS and modifications to the downtown distributor connections, the downtown roadway network can better serve and deliver the demand traffic to I-95.

Conceptual one-way pairs for local downtown network: eastbound and southbound (red), westbound and northbound (blue), two-way traffic (green).

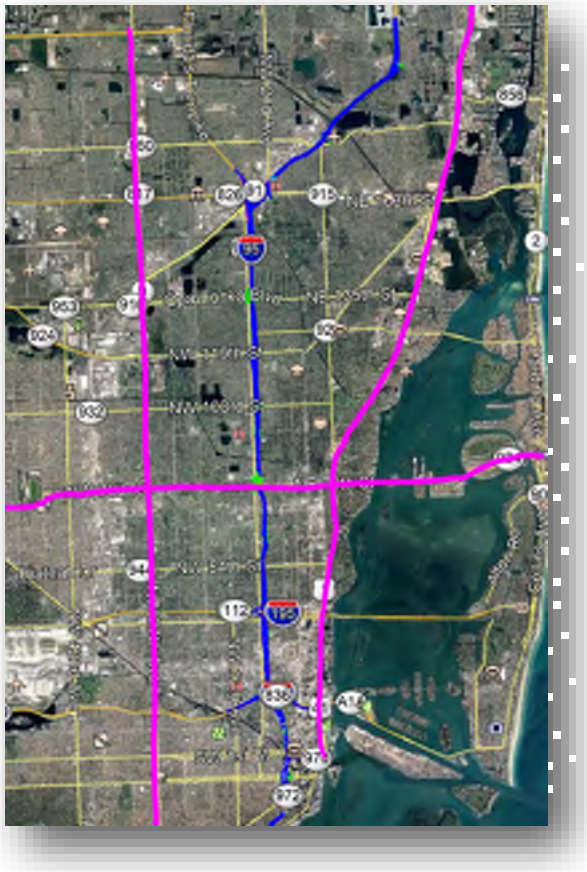
Benefits of converting the downtown local network to one-way pairs include:

- Optimizing local roadway operations, increasing the overall capacity of the transportation network
- Reduction in accidents
- Improved mobility

VE RECOMMENDATION NO. 15: IMPROVE LOCAL ROADWAYS	Idea Nos. 50, 54, and 69

Improving major arterials within the vicinity of I-95 will alleviate congestion and better serve MOT during construction. Recommended improvements include:

- Widening
- Adding left and right turn lanes where required and feasible
- Installation of Adaptive Signal Technology
- ITS improvements



Recommended major arterials to be considered for improvements include NW 27th Avenue, Biscayne Boulevard, and NW 79th Street (shown in magenta)

Assumptions/Calculations

It is assumed that a total of 7 miles of downtown roadway network will be milled, resurfaced, signed, and striped. Additionally, modifications to signal infrastructure will be required to convert the downtown local roadway network into one-way pairs. The estimate cost for this conversion is $500,000 per mile of roadway network.

Any revisions to the downtown local network will need to be analyzed in conjunction with any modifications to the downtown distributor ramps.

VE RECOMMENDATION NO. 15: IMPROVE LOCAL ROADWAYS	Idea Nos. 50, 54, and 69

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations Improves local flow and may reduce volumes on I-95	*Rating*	5	5.5
	Weight	19.4	
	Contribution	97	106.7
Local Operations Improves local flow and may reduce volumes on I-95	*Rating*	5	6
	Weight	13.8	
	Contribution	69	82.8
Maintainability Requires more maintenance	*Rating*	5	4.5
	Weight	11.1	
	Contribution	55.5	49.95
Construction Impacts May require resurfacing, impacting locals	*Rating*	5	4.5
	Weight	5.5	
	Contribution	27.5	24.75
Environmental Impacts Public perception; if combined with public outreach this may be a wash	*Rating*	5	4
	Weight	17.0	
	Contribution	85	68
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts Improves flow, but increased speeds could be a problem	*Rating*	5	6
	Weight	19.4	
	Contribution	97	116.4
Constructibility/MOT Improves MOT	*Rating*	5	5.5
	Weight	9.7	
	Contribution	48.5	53.35
Total Performance		500	522.45
Net Change in Performance			4%

VE RECOMMENDATION NO. 16: ENHANCE TRANSIT – COMMUTER RAILROAD	Idea Nos. 27 – 32

Baseline Concept

Transit Impacts – Tri-Rail Downtown Miami Link (TRDML). Proposed commuter rail service into Downtown Miami at the new Brightline Miami Central Station located in the Government Center Area. Tri-Rail service began operation with 25 Trains per Day in March 2018.

The Tri-Rail will also continue to service the Miami International Airport Station with an additional 25 Trains per Day. The 50 daily trains will operate at 30-minute headways alternating the final southbound destination of Downtown Miami or the Miami Airport.

During the Peak Morning Hours of 6:30 AM to 10:00 AM the Average Peak Hour Railroad Traffic is 1800 passengers per hour (4 trains x 3 passenger railcars x 150 passengers per car). This is more than the 1650 vehicles per hour equaling the capacity of one express lane.

Future proposals call to double the frequency of the trains during morning and evening peak traffic hour that will double seat capacity and reduce train headway to 15 minutes. This plan is called the Tri-Rail Coastal Link.

Recommendation Concept

All commuter railroad improvement efforts, will need to be implemented by the South Florida Regional Transportation Authority (SFRTA) as they operate Tri-Rail. The Florida Department of Transportation (FDOT) has in the past helped fund capital improvements for Tri-Rail.

It is recommended to look into ways to enhance commuter railroad transit throughout the entire corridor, thereby reducing I-95 congestion. Six individual ideas related to the commuter railroad were generated for recommendation.

Advantages	Disadvantages
• Removes traffic from I-95. • Improves highway operations. • May reduce project footprint • Reduces cost to user (e.g. express lane tolls, fuel, parking fees, etc.) • Longer life cycle of roadway facilities (less maintenance) • May improve travel time for the railroad commuter as compared to the automobile commuter.	• Requires coordination and buy-in with SFRTA and other agencies • The quality of the train experience must be high enough that people are willing to leave the comfort of their automobiles • There must be significant time savings realized by taking the commuter train over driving a personal car • The public may not embrace transit • Need to connect using a bus or Uber • "Last mile" concerns on how to get from the train station to my work or home.

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$108,800,000	N/A	$108,800,000
Recommendation Concept	$150,000,000	N/A	$150,000,000
Cost Avoidance/(Added Value)	$(41,200,000)	N/A	$(41,200,000)

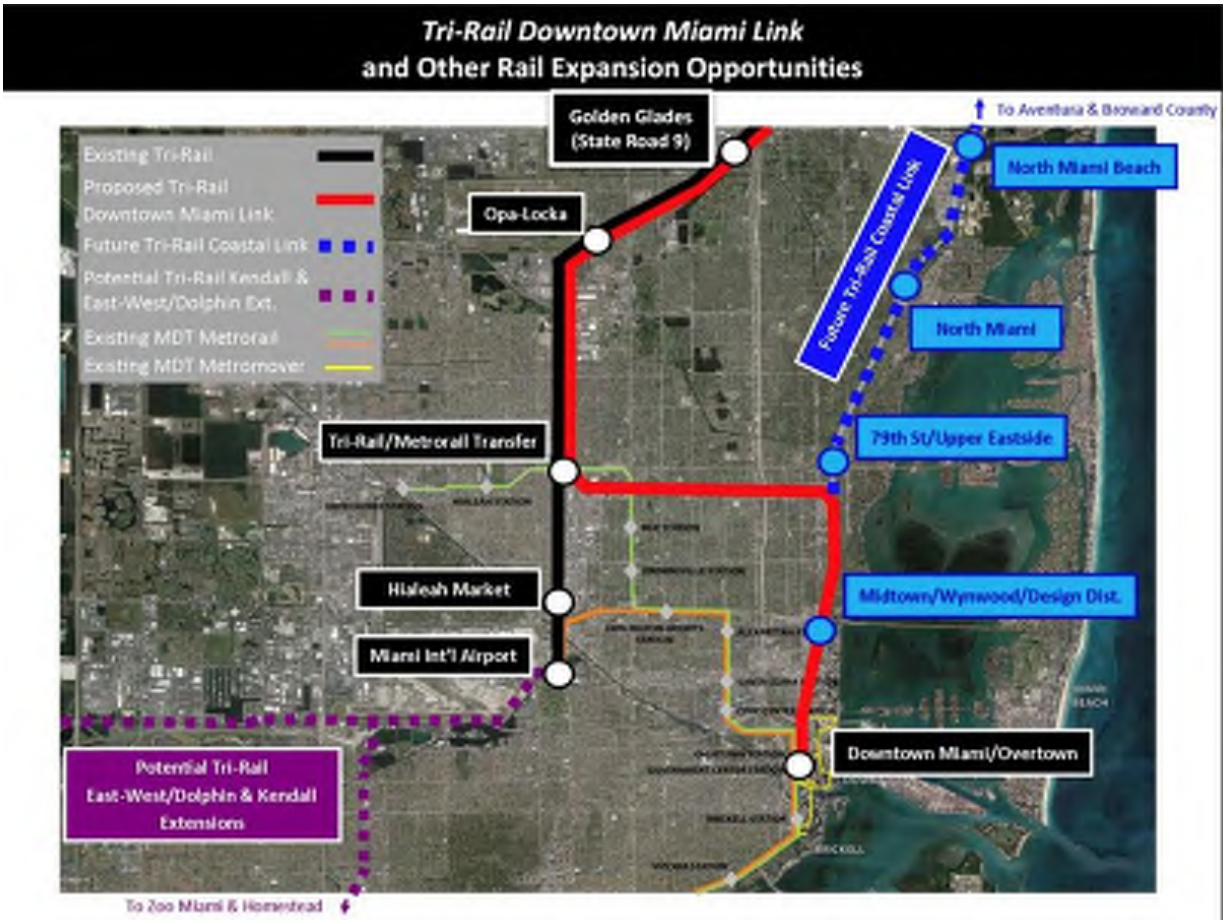
FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓	✓	✓	✓

VE RECOMMENDATION NO. 16: ENHANCE TRANSIT – COMMUTER RAILROAD	Idea Nos. 27 – 32

Discussion/Sketches/Photos/Calculations

Figure: The Constructed TRDML (Red Line) will be operational in March 2018.



Technical Discussion/Sketches

Idea 27 – Reduce Headway on Tri-Rail Commuter Railroad to accommodate additional ridership. SFRTA is already pursuing this goal with the Tri-Rail Coastal Link, which has completed the study phase and is ready to proceed with project development and the environmental impact phase. Project construction funding is not currently programmed. FDOT could take the lead in funding the construction of this project, which could quadruple the average peak hour railroad capacity through the I-95 corridor to 6,768 passengers per hour (equal to four roadway express lanes).

This assumes operation of Tri-Rail during the peak morning hours of 6:30 a.m. to 10:00 a.m. with a train headway of 20 minutes. Trains would be composed of a locomotive and six passenger railcars; thus, additional locomotives and passenger railcars will need to be purchased. Other capital costs include construction of additional train stations with adequate Park & Ride lots (Idea 28).

Idea 29 – Improve the commuter rail user experience by modernizing FDOT's website for ride share/transit options. FDOT to assist SFRTA in developing smart phone apps to schedule and pay for train tickets.

VE RECOMMENDATION NO. 16: ENHANCE TRANSIT – COMMUTER RAILROAD	Idea Nos. 27 – 32

Idea 30 – Partner with private industries/companies to incentivize transit use and subsidize the Tri-Rail train ticket cost during the I-95 construction period to (Idea 31).

Idea 32 – Educate the traveling public about Brightline Express Railroad as an alternative transportation method during construction, by advertising through broadcast, print, and social media.

Assumptions/Calculations

New station construction costs will be paid for by the local community.

Park & Ride lots will be paid for by SFRTA. The average cost for a parking space and miscellaneous appurtenances is $30,000 per car.

Construction cost for an express lane is $1.6 M per mile. For 4 x 17 miles of express lanes the roadway construction cost is $108.8 M.

Capital cost for a diesel electric locomotive (6 passenger car towing capacity) is $4.0 M each. Will need to purchase four new locomotives.

Capital cost for a bi-level coach passenger car (188 passenger capacity) is $2.8 M. Will need to purchase 48 new passenger cars.

Did not consider cost savings for less roadway right-of-way purchased.

Did not consider structural construction cost of elevated express lanes.

Did not consider the cost for roadway operation and maintenance.

Did not consider the additional railroad operation and maintenance cost.

Did not consider the loss of roadway toll revenues or the income from railroad tickets.

Figure: Typical Commuter Rail Station – Prototype for Wynwood Station

VE RECOMMENDATION NO. 16: ENHANCE TRANSIT – COMMUTER RAILROAD	Idea Nos. 27 – 32

PERFORMANCE MEASURES Attributes and Rating Rationale for Recommendation	*Performance*	*Original*	*Alternative*
Main Line Operations Removes traffic off the main line	*Rating*	5	6
	Weight	19.4	
	Contribution	97	116.4
Local Operations	*Rating*	5	5
	Weight	13.8	
	Contribution	69	69
Maintainability Would require maintaining fewer bridges	*Rating*	5	5
	Weight	11.1	
	Contribution	55.5	55.5
Construction Impacts More temporary closures and detours	*Rating*	5	5
	Weight	5.5	
	Contribution	27.5	27.5
Environmental Impacts	*Rating*	5	5
	Weight	17.0	
	Contribution	85	85
Project Schedule	*Rating*	5	5
	Weight	4.1	
	Contribution	20.5	20.5
Access and Conflicts	*Rating*	5	5
	Weight	19.4	
	Contribution	97	97
Constructibility/MOT Improves MOT; may reduce lanes needed	*Rating*	5	7
	Weight	9.7	
	Contribution	48.5	67.9
Total Performance		500	538.8
Net Change in Performance			8%

6.5 Developed Design Suggestions

Design Suggestion No. 1 Coordinate I-395 Design	Idea Nos. 19, 57, and 70

Baseline Concept

The baseline concept has proposed improvements to all connections, including express lanes and general purpose lanes within I-95, and connections to SR 836 and I-395. The proposed I-95 northbound general purpose lanes are over the existing SR 836 eastbound and westbound. Proposed I-95 southbound general purpose lanes will be elevated instead of the current at-grade condition. In the concept proposed to reconstruct SR 836 eastbound and westbound, the bridge structures will be above I-95 southbound general purpose and below I-95 northbound general purpose. The I-95 express lanes (southbound and northbound) will be elevated to be a 6th level bridge structure. Connecting ramp structures are at various levels as needed.

Recommendation Concept

Coordinate with SR 836/I-395 design-build team to minimize potential throw-away with the ultimate configuration of I-95

Keep main lines at 3rd and 4th level and ramps at 5th and 6th level on express lanes at I-195 and I-395 (put ramps on top of express lanes instead of the other way around)

Put all express lanes and general purpose lanes (northbound/southbound) on same level

Advantages	Disadvantages
• Reduces possible throw-away • May improve operations • Reduces project duration for both projects • Reduces project cost • Optimizes future constructibility for this project	• Projects at various stages may increase design cost • Could be unknown typical section on I-95 • Requires agency coordination • Would require early conceptual commitments

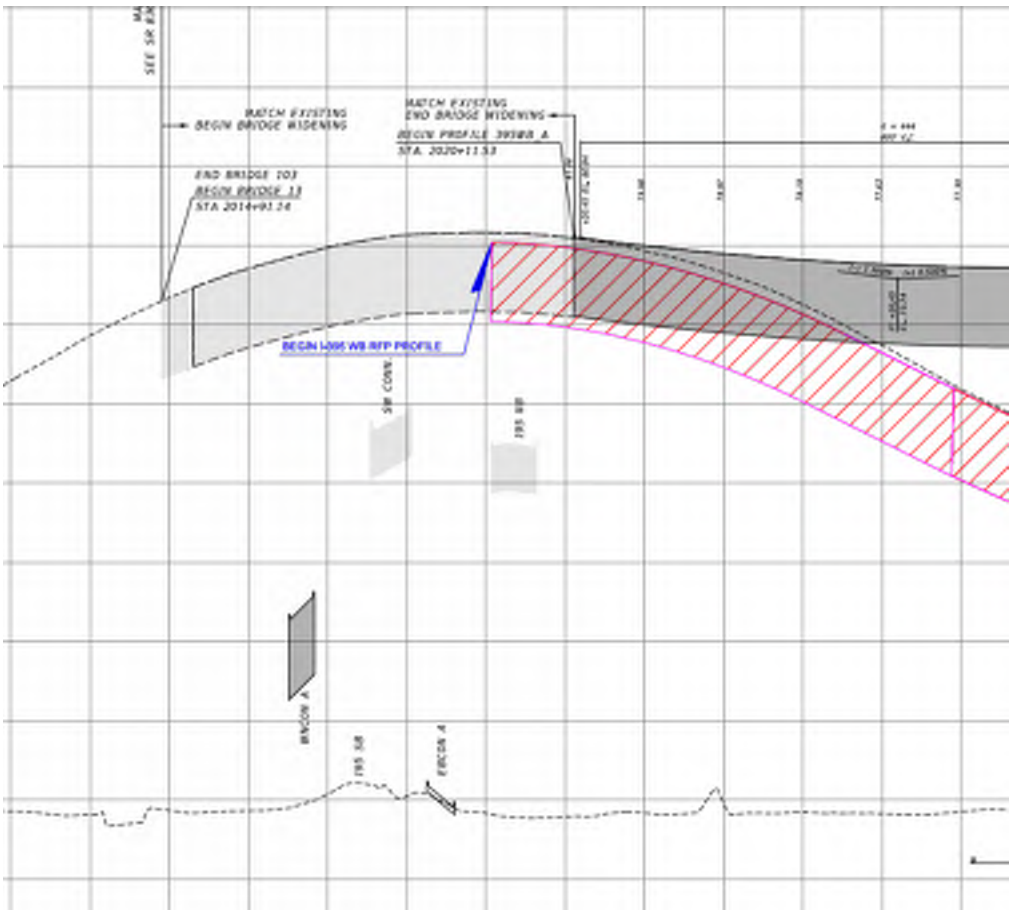
Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept			
Recommendation Concept	No quantifiable		
Cost Avoidance/(Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓	✓	✓	✓

Design Suggestion No. 1 Coordinate I-395 Design	Idea Nos. 19, 57, and 70

Discussion/Sketches/Photos/Calculations



Technical Discussion/Sketches

The SR 836/I-395 design build project had been in development while this Planning Study was in progress. Due to the project status during the study (and the SR 836/I-395 design being unavailable), the planning study overall layout at this interchange will not work with the design build concept. This interchange needs to be re-analyzed.

1. The elevated I-95 southbound general purpose and the new alignment is shifted west. This will conflict with the proposed design-build concept.
2. The I-95 northbound general purpose lanes will be at the third level, which will conflict with the proposed SR 836/I-395 viaduct.
3. The various proposed connector ramps are in conflict with the design-build concept.

The VE team recommends coordinating the design-build team, reanalyzing and redeveloping the interchange concept. This will ensure the proposed alternative matches the design bid concept, thereby minimizing throw-away during SR 836/ I-395 project construction.

Additionally, by coordinating with the SR 836/I-395 design build team, the vertical and horizontal alignments can be optimized to better serve the function and constructability of the I-95 proposed concept.

Design Suggestion No. 2 Improve Transit – Miami Dade Metro rail (MDMR)	Idea Nos. 33 through 38

Baseline Concept

The baseline concept does not consider Metro Rail transit improvements or an operational analysis of the existing and parallel express bus system (I-95 express or the local roads).

The Metro Rail system west of the I-95 corridor is operated by Miami-Dade Transit in Miami-Dade County. The Metro Rail system provides connections to Homestead via the bus-way to downtown Miami, then to northwest Miami-Dade and the Miami international airport, with connections to Tri-Rail. The system serves a limited area of Miami Dade County with just two routes.

In 2016, the SR 9/SR 817/NW 27 Avenue corridor, that is west of and parallel to the I-95 corridor, was identified by the Strategic Miami Area Rapid Transit (SMART) plan to be prioritized for premium transit services. The SMART plan was formulated by the Miami-Dade County Department of Transportation and Public Works (DTPW) that seeks to improve mobility within Miami-Dade County. The plan calls for the implementation of premium rapid transit (BRT or surface light rail or elevated heavy rail) in this corridor that will provide an alternate north-south route.

Recommendation Concept

Look into ways to improve metro rail transit throughout the entire north-south corridor. Six individual ideas were generated for recommendation (see next page).

Advantages	Disadvantages
• Removes traffic from I-95 • Improves operations • Reduces cost to user • Longer life cycle of facilities (less maintenance) • May improve motorist travel time	• Requires coordination and buy-in with other agencies • Public may not embrace transit • “Last mile” connection concerns

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept			
Recommendation Concept			
Cost Avoidance/(Added Value)			

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓	✓	✓	✓

Design Suggestion No. 2 Improve Transit – Miami Dade Metro rail (MDMR)	Idea Nos. 33 through 38

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

Idea 33 – Extend metro rail into Broward County

Idea 34 – Increase metro rail routes

Idea 35 – Incorporate bus rapid transit (BRT) into I-95 express lanes (performance guarantee)

Idea 36 – Connect metro rail to GGI multimodal center

Idea 37 – Create FDOT owned transit section

Idea 38 – Modernize Metro railcars and Metro rail stations

Assumptions/Calculations

The Metro rail system is owned and operated by Miami Dade County. FDOT coordinates our designs with Metro rail to optimize the operation of both the state roads and the Metro rail. FDOT does not typically finance improvement to this system. None of these improvements can be directly implemented by FDOT.

FDOT is currently funding the PD&E studies for three of the SMART plan corridors. These are:

- NW 27 Avenue corridor premium transit (connects turnpike HEFT Park & Ride to Metro rail and Miami airport. Construction of this BRT or rail line will have the most direct effect on the I-95 traffic load.
- Kendall Avenue corridor premium transit.
- Flagler Avenue corridor premium transit.

All three of these transit routes are collectors that will connect to the existing Metro rail system for trips that end in downtown Miami. These transit trips should reduce the needed future capacity of the I-95 corridor ultimate improvements. The recommendations from the PD&E studies should be incorporated into the proposed master plan.

FDOT should look for ways to assist Miami Dade County in funding the construction of these transit improvements.

Design Suggestion No. 3 Improve Transit – Local Bus	Idea Nos. 39 through 41

Baseline Concept

The baseline concept does not address bus transit improvements or an operational analysis of the existing and parallel bus system (I-95 express or the local roads).

The local bus system along the I-95 corridor is operated by Miami-Dade transit in Miami-Dade County. The bus system provides connections to Metro Rail and Tri-Rail. The system serves areas of the county not served by rail transit options.

In 2016, the SR 9/SR 817/NW 27 Avenue corridor, that is west of and parallel to the I-95 corridor, was identified by the Strategic Miami Area Rapid Transit (SMART) plan to be prioritized for premium transit services. The SMART plan was formulated by the Miami-Dade County Department of Transportation and Public Works (DTPW) that seeks to improve mobility within Miami-Dade County. The plan calls for the implementation of premium rapid transit in this corridor that will provide an alternate north-south route.

Recommendation Concept

Look at ways to improve local bus transit throughout the entire corridor. Three individual ideas were generated for recommendation (see next page).

Advantages	Disadvantages
• Removes traffic from the main line • Improves operations • May reduce project footprint • Reduces cost to user • Longer life cycle of facilities (less maintenance) • Bus fare cost is lower than the cost of driving a personal automobile. • May improve travel time for the automobiles drivers using the same roadway because there are fewer cars.	• Requires coordination and buy-in with other transit agencies. • Public may not embrace transit. • Takes longer to commute to work or home on a local bus because of the many stops. • "Last mile" connection concerns as some destinations in the suburbs are not located near bus routes. • Additional cost of bus-transit facilities

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	N/A	N/A	N/A
Recommendation Concept	$500,000	N/A	$500,000
Cost Avoidance/(Added Value)	($500,000)	N/A	($500,000)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
✓	✓	✓	✓	✓

Design Suggestion No. 3 Improve Transit – Local Bus	Idea Nos. 39 through 41

Discussion/Sketches/Photos/Calculations

Technical Discussion

Idea 39 – Incorporate Bus Rapid Transit (BRT) local road shoulders.

Idea 40 – Add Park & Ride lots in outlying communities not served by Metro Rail with express buses connecting to downtown Miami and Miami Beach and the Metro Rail.

Idea 41 – Grant transit signal priority (TSP) to buses to improve transit time in downtown Miami and Miami Beach.

Assumptions/Calculations

A comprehensive analysis of the parallel and crossing bus services would be necessary to thoroughly understand the ridership patterns and operational characteristics of the I-95 corridor and how best to connect to Metro Rail and Tri-Rail after the planned March 2018 operational changes. The bus service routes that will connect to the future Tri-Rail Coastal Link Service also need to be studied in a comprehensive multimodal computer model like PTV Visum for public transport.

There are opportunities to integrate customer origins/destinations and operational efficiencies. Those opportunities should be explored as a mechanism to improve operating efficiencies and customer service. This analysis could be tested through the regional or FTA simplified trips-on-project software (STOPS) ridership model. For these tests, it is recommended that the STOPS model be used.

The evaluation and testing of parallel and intersecting bus routes could have the following advantages:

- Reduce operation costs
- Maximize vehicle fleet efficiencies
- Maximize ridership
- Eliminate inefficiencies
- Provide additional opportunities to integrate existing bus routes with new BRT and therefore increase ridership
- Reduce travel time by allowing efficient transfer to new BRT

Study Cost = $500,000

Design Suggestion No. 4: Convert Typical section (Alternative 1 Only)	Idea No. 71

Baseline Concept

Alternative 1 baseline concept consists of a 2-level typical section (3-level at existing, current 2-level sections), where the mainline express lanes are stacked over the general purpose lanes for the majority of the corridor.

Recommendation Concept

Convert typical section to split by direction, northbound and southbound traffic on different levels instead of separating them by the type of traffic (express lanes vs general purpose lanes). The southbound lanes will be running above the northbound lanes.

Advantages	Disadvantages
• Reduces footprint • Allows for replacement of walls with buffer separator and delineators • Reduction in cost • Less impervious area • Less right of way acquisition • Reduces overhead construction	• Requires separate gantry equipment • Local connections with higher roadway • Increase in ramps from upper level

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$5,185,193,000		$5,185,193,000
Recommendation Concept	$4,934,931,000		$4,934,931,000
Cost Avoidance/(Added Value)	$250,264,000		$250,264,000

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓	✓	✓	✓

Design Suggestion No. 4: Convert Typical section (Alternative 1 Only)	Idea No. 71

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The proposed Alternative 1 typical section maintains the express lanes over the general purpose lanes for the majority of the corridor. By maintaining the widest footprint on the bottom, the resulting straddle width is approximately 180 feet, which results in a significantly wide bridge span.

The revised typical section proposed with this recommendation consists of elevating the southbound traffic (both general purpose and express lanes) and placing it above the northbound traffic. By separating the levels by direction and not by the type of traffic, there will be significant reduction in the bottom level footprint and therefore on the total span width. There will be a net reduction of two lanes, and two inside shoulders. Because the revised typical does not include opposing traffic on the same level, the median barrier can be replaced with a buffer and delineators. The bridge span width will be reduced by approximately 50 feet, resulting in a significant reduction in bridge cost along the mainline.

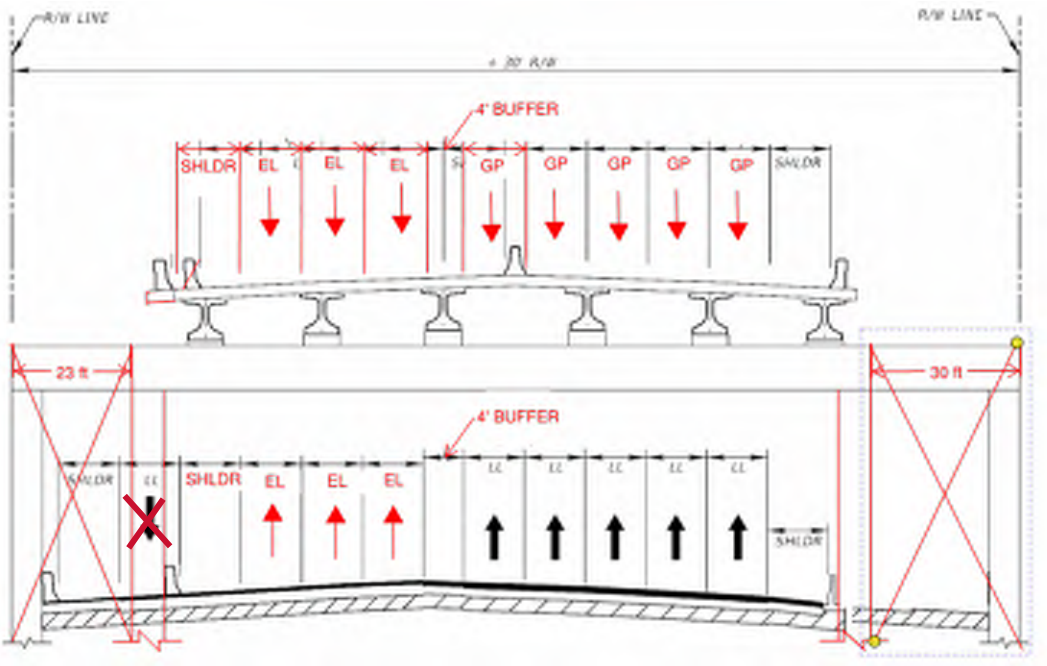
The reduction of the footprint in the lower level will provide more space to shift the CD roads and the ramps in and accommodate them within the existing right of way. Some right-of-way acquisition will still be required for maintenance of traffic, but for comparison purposes, and due to the early stages of the design, right of way savings are not included. Impervious area will be reduced and more space will be available to accommodate drainage improvements. Right-of-way may still be required for MOT purposes.

Some of the challenges with the revised typical include the connections to and from local roads. Because the southbound general purpose lanes will now be a level higher, more bridges will be required to provide all connections to local traffic. An increase in cost for toll gantry structures is also anticipated as separate toll gantry equipment will need to be installed along northbound and southbound express lanes. There could also be potential vertical clearance conflicts with the toll gantry structures.

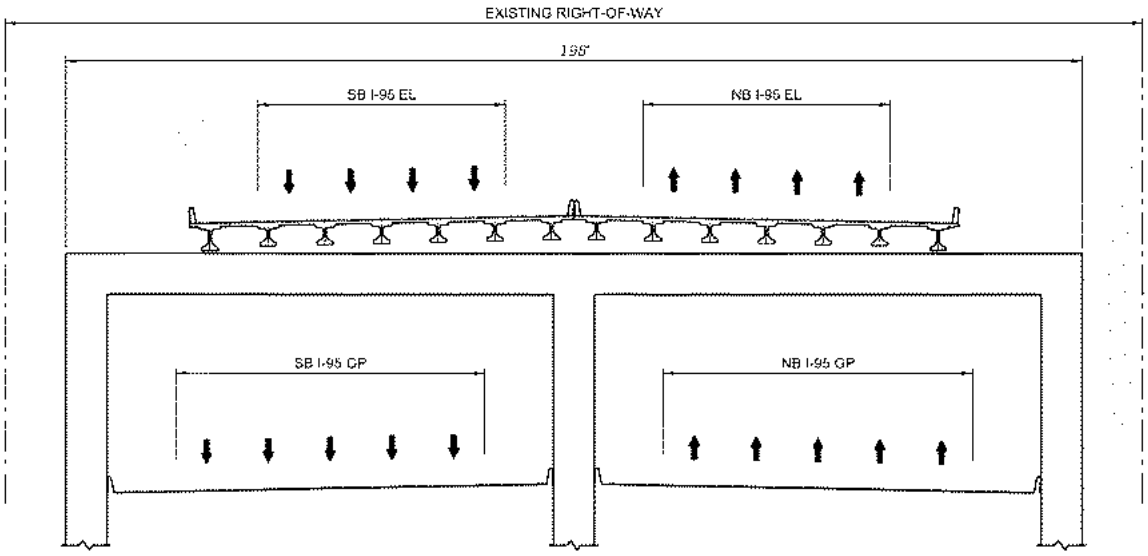
The figure below shows how the revised typical would look compared to the original Alternative 1.

Design Suggestion No. 4: Convert Typical section (Alternative 1 Only)	Idea No. 71

Comparison Typical Sections

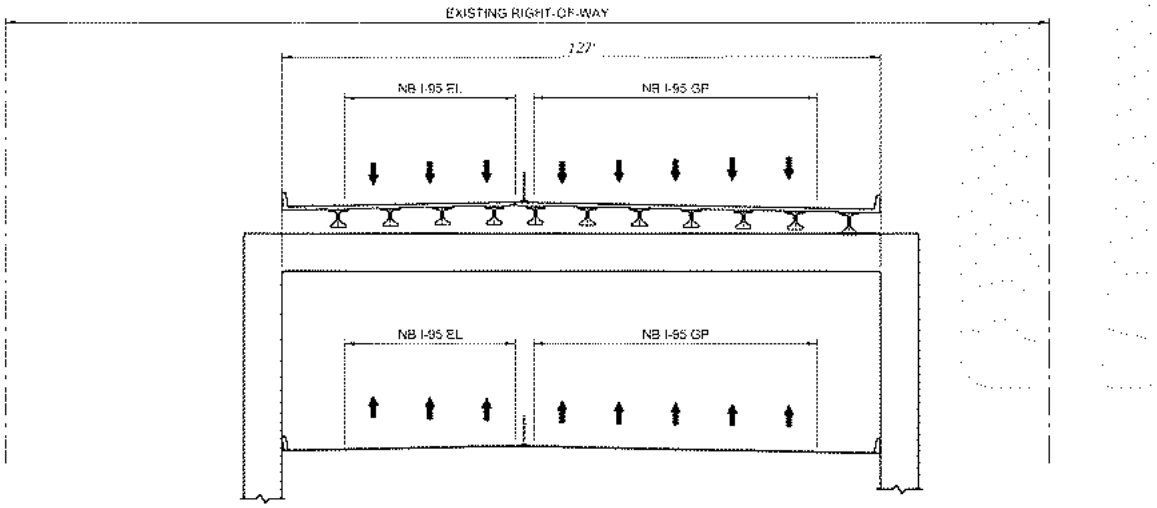


Alternative 1 Base Typical



Design Suggestion No. 4: Convert Typical section (Alternative 1 Only)	Idea No. 71

Revised Typical Section



Assumptions/Calculations

- The number of general purpose and express lanes varies throughout the project. The typical sections shown are consistent with the typical sections in the presentation.
- The location of the existing right-of-way line varies greatly throughout the segment 3 zone. The location shown is consistent with the location shown in the original presentation for comparison purposes.
- The right-of-way acquisition cost was not included in the cost estimate; however, the restacking will reduce the footprint and likely reduce right-of-way requirements.
- Because the number of express lanes/general purpose lanes varies throughout the project, for cost estimate comparison, the reduction on the bridge area calculated was assuming only the inside shoulders and barrier (26 feet) were reduced to a buffer and delineators (4 feet). The reduction in bridge width due to the number of lanes was neglected.
- Measurements were taken from the PDF; no CADD files were provided.
- The cost of median concrete barrier and express lanes delineators was added in addition to the net mile cost of $1.6 million for comparison purposes.

Design Suggestion No. 4: Convert Typical section (Alternative 1 Only)	Idea No. 71

VE Study Life-Cycle Costs Calculations
I-95 Planning VE Study

		Baseline Concept			VE Recommended Concept		
Component	Unit	Quantity	Cost/Unit	Total	Quantity	Cost/Unit	Total
Roadway Recontruction	Lane Miles	175	$ 1,600.00	$ 280,640.00	175	$ 1,600.00	$ 280,640.00
Delineator Flexible High Performance	EA	0	$ 110.00	$ -	14,440	$ 110.00	$ 1,588,400.00
Concrete Barrier Wall	LF	72,200	$ 134.00	$ 9,674,800.00	0	$ 134.00	$ -
Retaining wall - 18' average height - $32/SF	LF	173,710	$ 576.00	$ 100,056,960.00	173,710	$ 576.00	$ 100,056,960.00
Retaining Wall - 24' average height - $32/SF	LF	207,403	$ 768.00	$ 159,285,504.00	207,403	$ 768.00	$ 159,285,504.00
Noise wall - 16' average height - $30/SF	LF	68,700	$ 480.00	$ 32,976,000.00	28,600	$ 480.00	$ 13,728,000.00
Existing Structures Demolition	SF	4,323,217	$ 60.00	$ 259,393,020.00	4,323,217	$ 60.00	$ 259,393,020.00
Bridges	SF	16,706,468	$ 198.00	$ 3,307,880,664.00	15,901,268	$ 198.00	$ 3,148,451,064.00
Additional Drainage		5%		$ 193,477,379.40	5%		$ 184,139,179.40
Additional Sign Structures		1%		$ 38,695,475.88	1%		$ 36,827,835.88
Signatilzation, Tolling and ITS		3%		$ 116,086,427.64	3%		$ 110,483,507.64
MOT		10%		$ 386,954,758.80	10%		$ 368,278,358.80
Contingency		15%		$ 580,432,138.20	15%		$ 552,417,538.20
SUBTOTAL				*$ 5,185,193,767.92*			*$ 4,934,930,007.92*
Subtotal				**$ 5,185,193,767.92**			**$ 4,934,930,007.92**
TOTAL CAPITAL COST				***$ 5,185,193,767.92***			***$ 4,934,930,007.92***
COST CAPITAL SAVINGS / (INCREASE)							***$ 250,263,760.00***
TOTAL LIFECYCLE COSTS				***$ 5,185,193,767.92***			***$ 4,934,930,007.92***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ 250,263,760.00***

Design Suggestion No. 5: Flip Express and General Purpose Lanes (Alternative 1 Only)	Idea No. 72

Baseline Concept

Alternative 1 baseline concept consists on a 2-level typical section, with the mainline express lanes stacked over the general purpose lanes for the majority of the corridor.

Recommendation Concept

Flip the general purpose lanes to the top and straddle them over the express lanes. The general purpose lanes will be elevated and the express lanes will be at grade.

Advantages	Disadvantages
• Reduces footprint • Slightly reduces right-of-way Impacts • Simplifies signing by reducing the number of non-standard signage due to vertical constraints • Provides flexibility to optimize alignment of mainline, ramps, and CD road	• Complicates connections to local roadways • More difficult to construct • More structures, higher clearance for express lane signs • Complicates MOT

Cost Summary	Construction Cost	Right-of-way Costs	Total Cost
Baseline Concept	$5,172,229,536		$5,172,229,536
Recommendation Concept	$5,398,225,896		$5,398,225,896
Cost Avoidance/(Added Value)	($225,996,360)		($225,996,360)

FHWA Function Benefit

Safety	*Operations*	*Environment*	*Construction*	*Right-of-way*
	✓	✓		✓

Design Suggestion No. 5: Flip Express and General Purpose Lanes (Alternative 1 Only)	Idea No. 72

Discussion/Sketches/Photos/Calculations

Technical Discussion/Sketches

The proposed Alternative 1 typical section maintains the express lanes over the general purpose lanes for the majority of the corridor. By maintaining the widest footprint on the bottom, the resulting straddle width is approximately 180 feet, which results in a significantly wide bridge span. The revised typical section consists of maintaining separation of levels by the type of traffic, similar to Alternative 1, but reversing the current typical by keeping the express lanes at grade and elevating the general purpose lanes. By elevating the general purpose lanes, there will be an approximate reduction on the footprint on the at-grade section, which will allow for the piers to shift to the inside, decreasing the span width, and resulting in a reduction in footprint by approximately 45 feet. The reduction of the footprint in the lower level will provide more space to shift the CD roads and the ramps in and accommodate them within the existing right of way. Some right-of-way acquisition will still be required for maintenance of traffic.

Because the revised typical will provide enough space to accommodate all existing lanes (eight general purpose lanes and four express lanes) all on the upper level, this typical section will facilitate maintenance of traffic by allowing construction at the lower level, while maintaining traffic on the upper level and avoiding any closures. The reduction in footprint at the lower level will additionally reduce the impervious area and allow more space to accommodate drainage improvements.

With the revised typical section, the general purpose lanes will be a level higher than existing, all the connections to and from local roads will be more challenging, resulting in more structures. The placement of the signs will be easier because the express lanes, which require less signs overall, are now on the bottom. The potential vertical conflicts of the sign structures with the bridge will be less than if the general purpose lanes are running on the lower level.

Design Suggestion No. 5: Flip Express and General Purpose Lanes (Alternative 1 Only)	Idea No. 72

Figure 1: Comparison Typical Sections

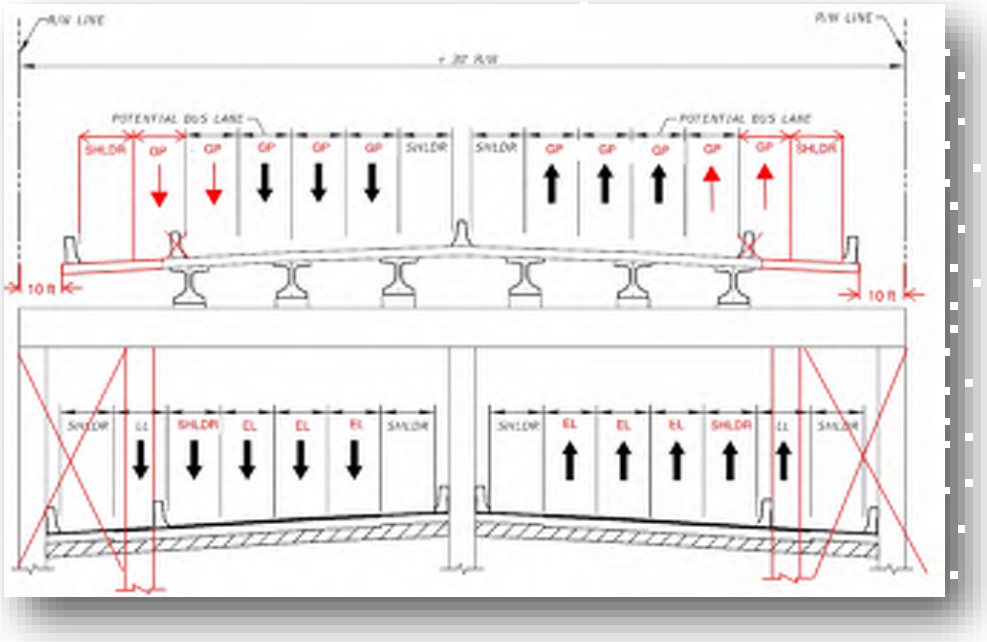
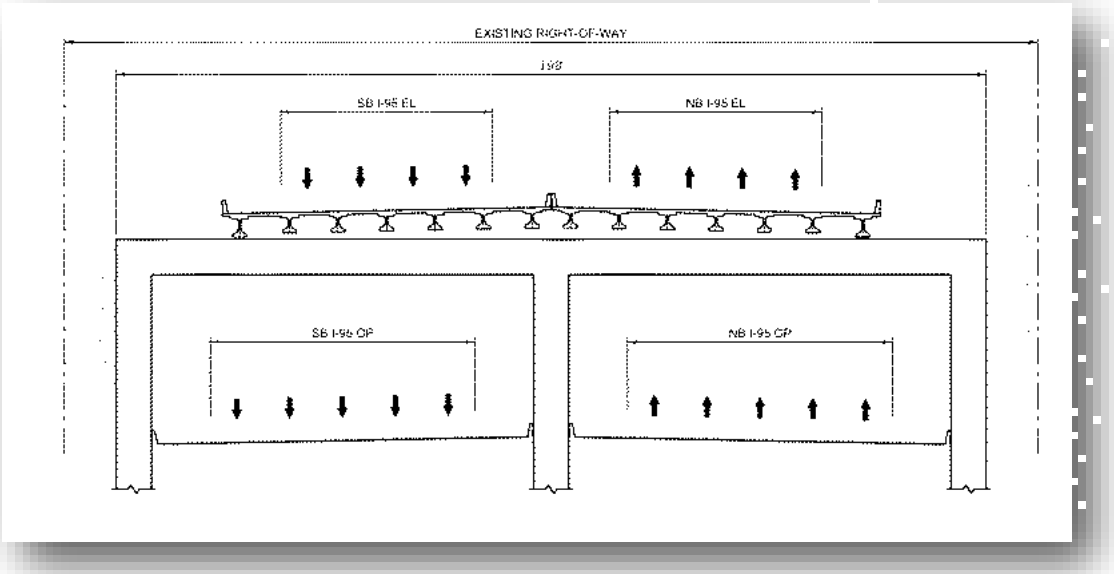
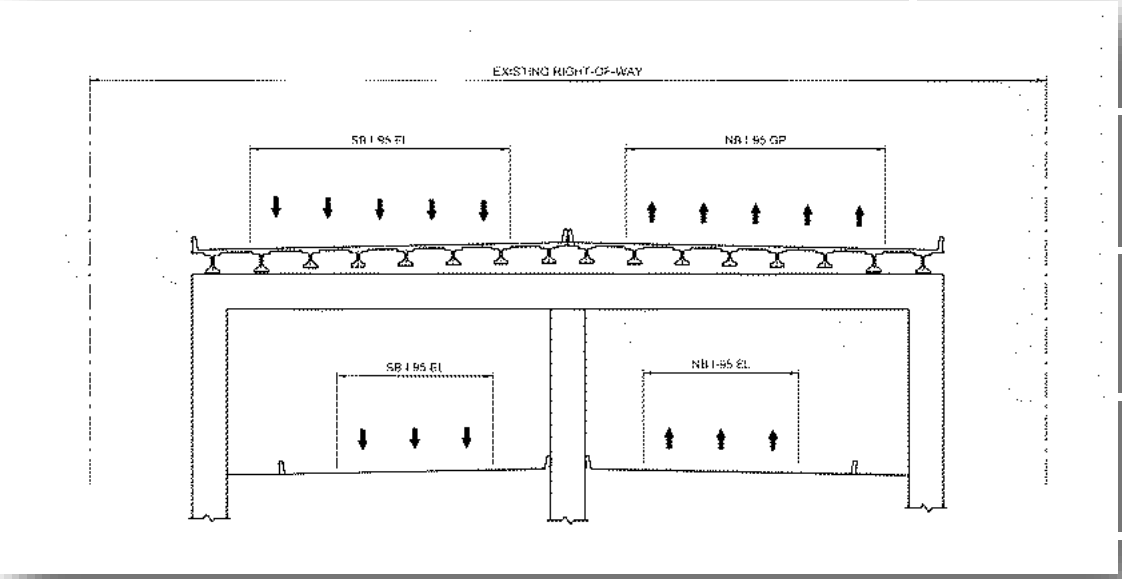


Figure 2: Alternative 1 Typical Section



Design Suggestion No. 5: Flip Express and General Purpose Lanes (Alternative 1 Only)	Idea No. 72

Figure 3: Revised Typical Section



Assumptions/Calculations

- The number of general purpose and express lanes varies throughout the project. The typical sections shown are consistent with the typical sections on the presentation.
- The location of the existing right-of-way line varies greatly throughout the segment 3 zone. The location shown is consistent with the location shown in the original presentation for comparison purposes.
- The right-of-way acquisition cost was not included in the cost estimate; however, this would allow more flexibility for the horizontal alignments to reduce right-of-way impacts.
- Measurements taken from the PDF since no CAD files were provided.
- An additional 500’ length of bridge was added to the ramps connecting to the general purpose lanes to account for the longer tie downs.

Design Suggestion No. 5: Flip Express and General Purpose Lanes (Alternative 1 Only)	Idea No. 72

VE Study Life-Cycle Costs Calculations
I-95 Planning VE Study

Component	Unit	Baseline Concept Quantity	Baseline Concept Cost/Unit	Baseline Concept Total	VE Recommended Concept Quantity	VE Recommended Concept Cost/Unit	VE Recommended Concept Total
Roadway Recontruction	Lane Miles	175	$ 1,600.00	$ 280,640.00	175	$ 1,600.00	$ 280,640.00
Retaining wall - 18' average height - $32/SF	LF	173,710	$ 576.00	$ 100,056,960.00	173,710	$ 576.00	$ 100,056,960.00
Retaining Wall - 24' average height - $32/SF	LF	207,403	$ 768.00	$ 159,285,504.00	207,403	$ 768.00	$ 159,285,504.00
Noise wall - 16' average height - $30/SF	LF	68,700	$ 480.00	$ 32,976,000.00	28,600	$ 480.00	$ 13,728,000.00
Existing Structures Demolition	SF	4,323,217	$ 60.00	$ 259,393,020.00	4,323,217	$ 60.00	$ 259,393,020.00
Bridges	SF	16,706,468	$ 198.00	$ 3,307,880,664.00	17,655,468	$ 198.00	$ 3,495,782,664.00
Additional Drainage		5%		$ 192,993,639.40	5%		$ 201,426,339.40
Additional Sign Structures		1%		$ 38,598,727.88	1%		$ 40,285,267.88
Signatilzation, Tolling and ITS		3%		$ 115,796,183.64	3%		$ 120,855,803.64
MOT		10%		$ 385,987,278.80	10%		$ 402,852,678.80
Contingency		15%		$ 578,980,918.20	15%		$ 604,279,018.20
SUBTOTAL				*$ 5,172,229,535.92*			*$ 5,398,225,895.92*
Subtotal				**$ 5,172,229,535.92**			**$ 5,398,225,895.92**
TOTAL CAPITAL COST				***$ 5,172,229,535.92***			***$ 5,398,225,895.92***
COST CAPITAL SAVINGS / (INCREASE)							***$ (225,996,360.00)***
TOTAL LIFECYCLE COSTS				***$ 5,172,229,535.92***			***$ 5,398,225,895.92***
COST LIFECYCLE SAVINGS / (INCREASE)							***$ (225,996,360.00)***

7 Analysis of Results

7.1 Risk Analysis on Response Strategies

New and innovative approaches inherently carry risk; the team identified the risks associated with these types of VE recommendations and risk response strategies.

To quantify these impacts, the VE recommendations and the response strategies were input into scenario models as opportunities in terms of their likely impact. During the presentation to management on the last day of the workshop, the audience was pooled to determine the probability of the implementation of each recommendation. Risk response strategies were defined and quantified for each of the risks that were not modified by VE recommendations.

At this point, new cumulative cost curves were generated that represented both the impacts of responding to the risk elements and partially or fully implementing the VE recommendations. By treating the VE recommendations as an opportunity to increase value through performance increases and cost reductions, it was demonstrated that further cost and schedule efficiencies could be obtained for the project.

Figure 13 through Figure 18 are shown with pre and post mitigation results.

7.2 Tracking, Monitoring, and Control

The expected value (likelihood multiplied by expected risk outcome) tornado diagrams below depict the actual expected values of the identified risks and help summarize the evolution the project has gone through by engaging in the CRAVE process. Not all risks identified require immediate management. Often, a project team needs to prioritize the risks for which it plans to develop strategies in the future in an effort to make the best use of the time available. An example would be to begin with the risks with the highest cost and schedule impacts.

Within the diagrams, the risks have the expected values plotted prior to responding to the risks and implementing the VE recommendations (red bars) and after responding to the risks and implementing VE recommendations at their expected likelihood (green bars).

Figure 23: Top Cost Risks for Alternative 1

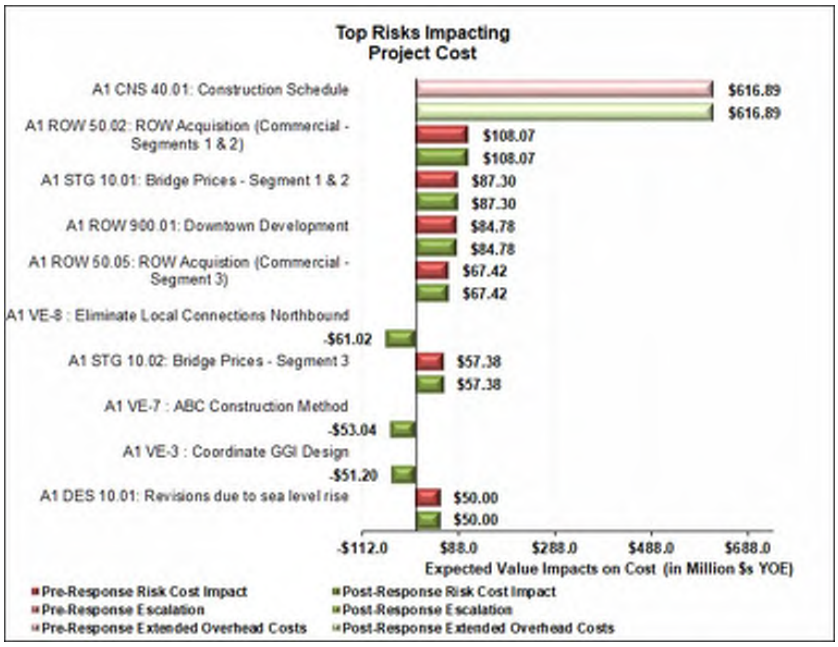


Figure 24: Top Cost Risks for Alternative 2

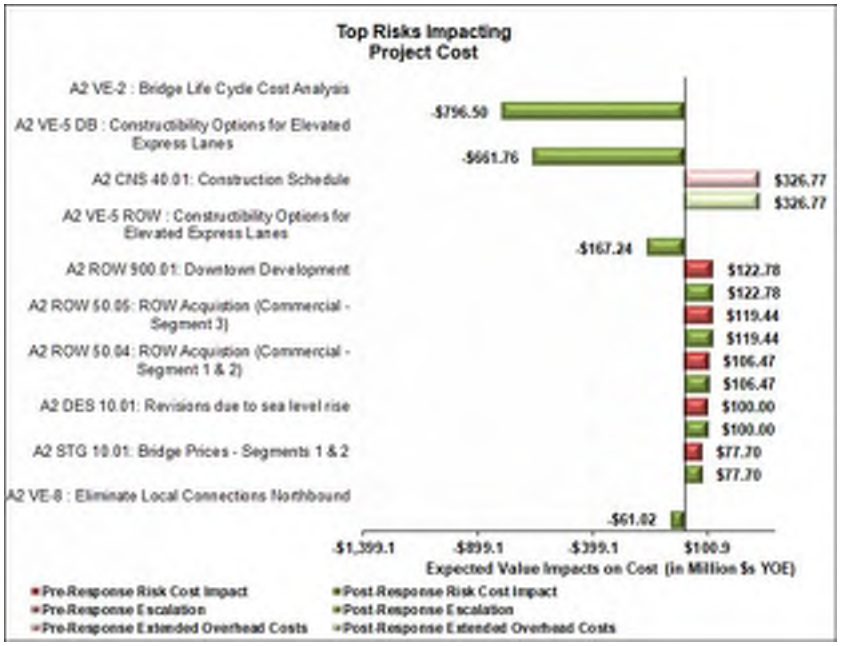


Figure 25: Top Schedule Risks for Alternative 1

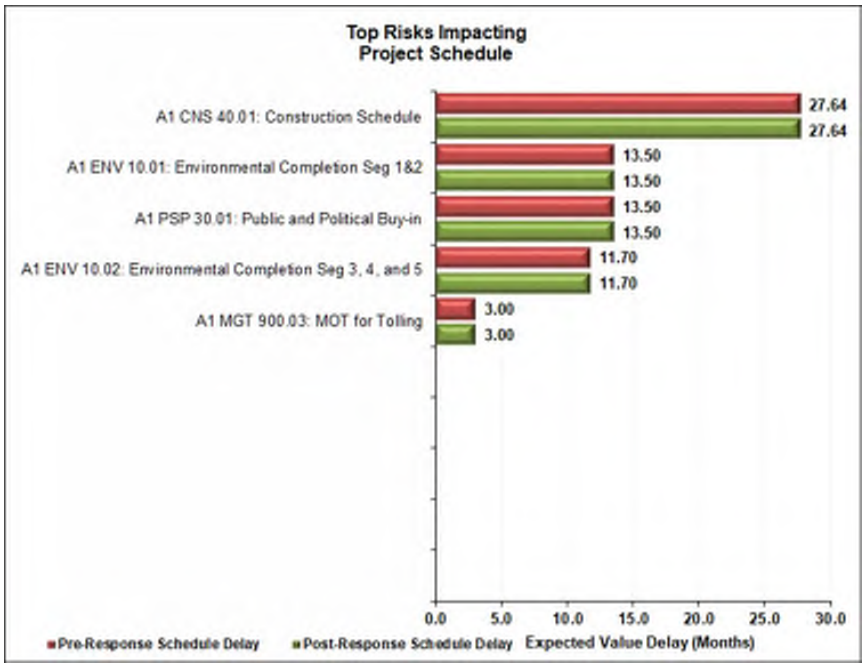
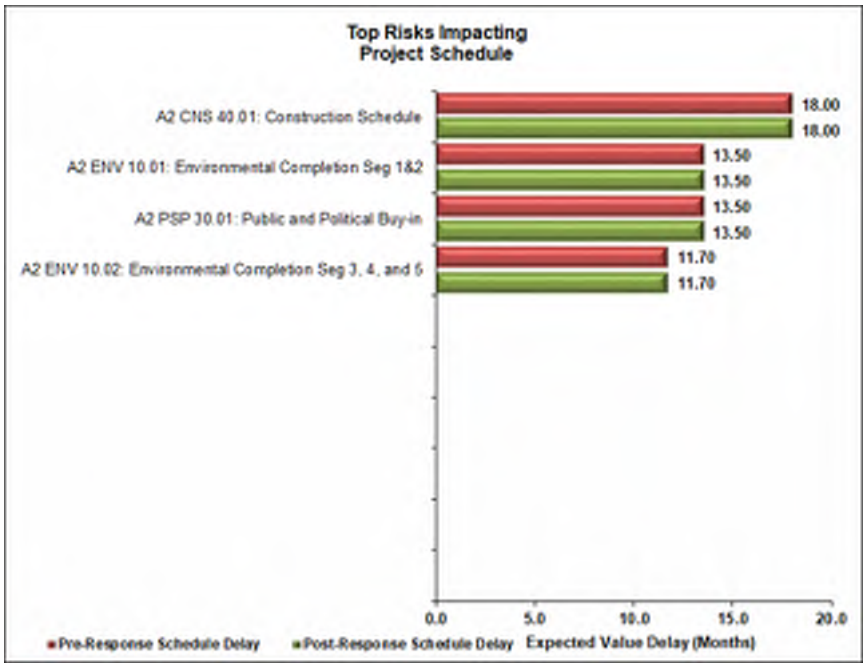


Figure 26: Top Schedule Risks for Alternative 2



By engaging in this cost risk analysis process to evaluate the project, the overall expectations of cost and schedule were quantified in relation to identified risks, the associated impacts of those risk elements, the use of a Risk Management Plan to respond to those risk elements, and impacts to the project bottom line of creating value for the project.

Through this process, value can simultaneously be created for the project through the VE portion of the workshop, while risks can be proactively monitored and controlled to reduce potential impacts to the project cost and schedule.

The risk register or risk data sheets provided in Appendix E can serve as a risk tracking tool and contains areas for risk response and planning. The project team should assign a “risk owner” to track and record the effectiveness of the strategies and any changes to the project risk profile, as follows:

- Document the response action by describing the action, the work activities it will affect, and the cost of the response action.
- Identify the person(s) responsible for successful implementation of the response action.
- Document whether response actions have a positive or negative effect on achieving project objectives in the Risk Management Plan.
- Consider the time impacts of the response action and how the risk response may affect the overall project and/or other risks.
- Monitor progress of implementation of risk response strategies and Value Engineering recommendations.
- Update the Risk Model periodically as necessary to update risk-based estimates.

7.3 CRAVE Process Summary

The cost risk analysis provided an evaluation of the estimated project total cost and schedule and included four major steps.

The first step was to establish a base cost and schedule, then identify and quantify the major risk elements and how they impact cost and schedule. The second step was to identify how to respond to the highest likelihood and impact risk elements. The third step was to quantify the effects of implementation of the risk response strategies. The final step was to quantify the effects on project cost and schedule by implementing the VE recommendations.

The information provided by a CRAVE study gives valuable tools to project managers to help them deliver a successful project on time and within budget. When a multi-disciplined team of experts is assembled in a workshop environment, maximum benefit can be achieved by using this combined cost risk assessment/value engineering process.

Appendix A

VE Recommendation Approval Form

Appendix A. VE Recommendation Approval Form

Project: I-95 Corridor Planning Study. **VE Study Dates:** May 8 through May 24, 2018

	Recommendation	Approved Y/N	FHWA Functional Benefit: Safety	Operations	Environment	Construction	Right-of-way	VE Team Estimated Cost in $ millions Avoidance or Value Added	Actual Estimated Cost in $ millions Avoidance or Value Added
1	TSM&O			✓		✓		Not quantifiable	
2	Bridge Life Cycle Cost Analysis				✓	✓	✓	f$1,062.0	
3	Coordinate GGI Design			✓		✓		$102.4	
4	Constructability Options for Elevated Express Lanes			✓	✓	✓	✓	$1,036.3	
5	Separate Connection between I-395/SR 836 and Downtown			✓		✓		$48.6	
6	ABC Construction Method					✓		$66.3	
7	Eliminate Local Connections NB		✓	✓	✓	✓	✓	$200.1	
8	Eliminate Local Connections SB		✓	✓	✓	✓	✓	$ 29.3	
9	P3 Procurement Process				✓	✓		Not quantifiable	
10	4D Rendering				✓	✓		($ 0.3)	
11	Maintain Third Level at Gratigny			✓		✓		$2.7	
12	Realign I-95 in Segment 1			✓		✓		$22.8	
13	Public Outreach				✓	✓		($8.0)	
14	Separate Downtown Distributor Connections		✓	✓		✓		$14.9	
15	Improve Local Roadways			✓				(3.5)	
16	Improve Transit – Tri-Rail		✓	✓	✓	✓	✓	$41.2	
TOTALS								$2,532.6	

Please provide justification if the value engineering workshop recommendations are **not** approved or are implemented in a modified form.

The Project Manager will review and evaluate the VE Team's recommendation(s) that are included in the Final Report. The Project Manager shall complete the VE Recommendation Approval form that is included in this report.

For each recommendation that is not approved or is modified by the Project Manager, justification needs to be provided. This justification shall include a summary statement containing the Project Manager's decision not to use the recommendation in the project.

The completed VE Recommendation Approval form including justification for any recommendations not approved or modified shall be sent to the FDOT State Value Engineer by October 1 of each year so the results can be included in the annual Value Engineering Report to FHWA.

_____ _____

Signature Project Manager Date

_____

Name (please print)

FHWA Functional Benefit Criteria

Each year, State DOTs are required to report on VE recommendations to FHWA. In addition to cost implications, FHWA requires the DOTs to evaluate each approved recommendation in terms of the project feature or features that recommendation benefits. If a specific recommendation can be shown to provide benefit to more than one feature described below, count the recommendation in *each category that is applicable*.

Safety: Recommendations that mitigate or reduce hazards on the facility.

Operations: Recommendations that improve real-time service and/or local, corridor, or regional levels of service of the facility.

Environment: Recommendations that successfully avoid or mitigate impacts to natural and/or cultural resources.

Construction: Recommendations that improve work zone conditions or expedite the project delivery.

Right-of-way: Recommendations that lower the impacts or costs of right-of-way.

Appendix B

Value Engineering Process

Appendix B. Value Engineering Process

Value Engineering (VE) is a systematic process using a multidisciplinary team to improve the value of a project through the analysis of its functions. The VE process incorporates, to the extent possible, the values of design; construction; maintenance; contractor; state, local and federal approval agencies; other stakeholders; and the public.

The primary objective of a VE study is value improvement. The value improvements might relate to scope definition, functional design, constructability, coordination (both internal and external), or the schedule for project development. Other possible value improvements are reduced environmental impacts, reduced public inconvenience, or reduced project cost.

Value Engineering Job Plan

The Value Engineering Job Plan was employed in analyzing the project. This process is recommended by SAVE International and is composed of the following phases:

Information - The objective of this phase was to obtain a thorough understanding of the project's design criteria and objectives by reviewing the project's documents and drawings, cost estimates, and schedules.

Function Analysis - The purpose of this phase was to identify and define the primary and secondary functions of the project. A Function Analysis System Technique (FAST) was used to quickly define the functions of the project.

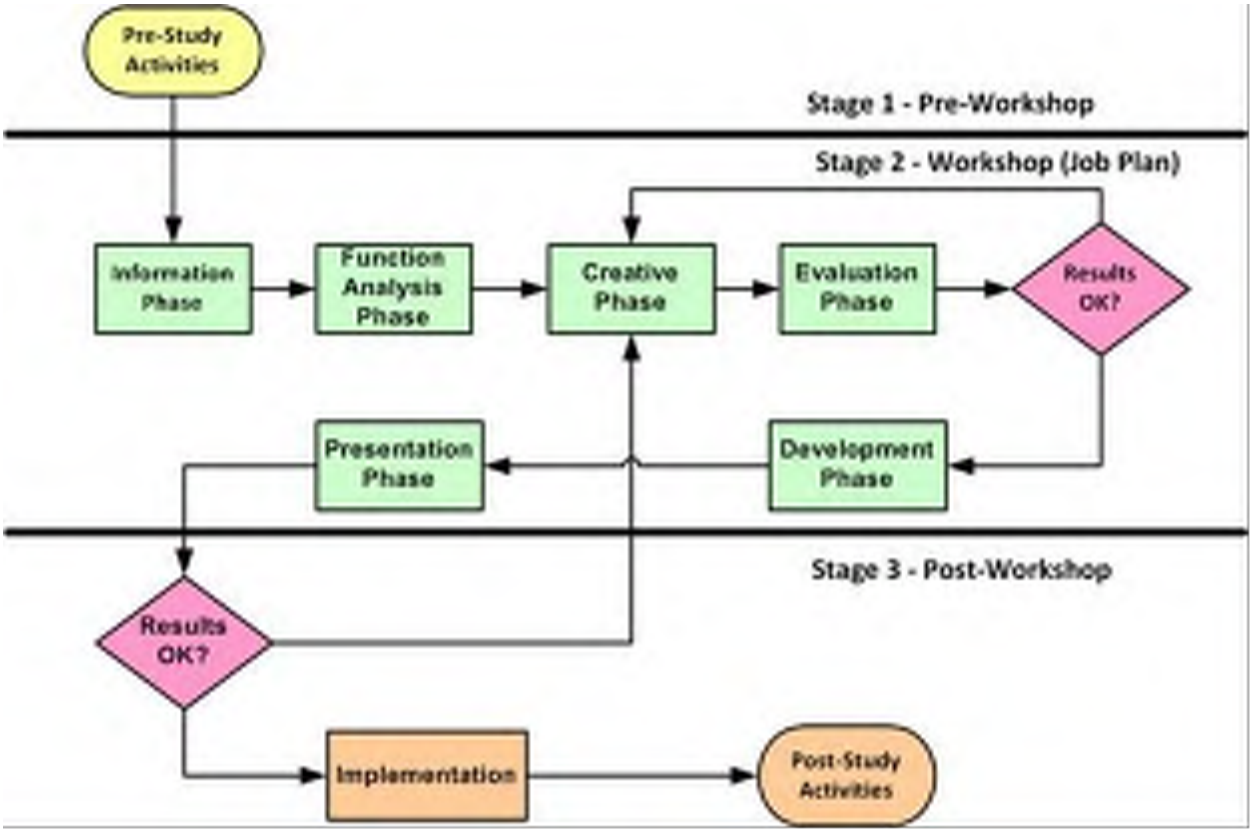
Creative - During this phase the team employed creative techniques such as team brainstorming to develop a number of alternative concepts that satisfy the project's primary functions.

Evaluation - The purpose of this phase was to evaluate the alternative concepts developed by the CRAVE team during the brainstorming sessions. The team used a number of tools to determine the qualitative and quantitative merits of each concept.

Development - Those concepts that ranked highest in the evaluation were further developed into CRAVE recommendations. Narratives, drawings, calculations, and cost estimates were prepared for each recommendation.

Presentation - The CRAVE team presented their finding in the form of a written report. In addition, an oral presentation was made to the owner and the design team to discuss the CRAVE recommendations.

Implementation/Resolution - Evaluate, resolve, document, and implement all approved recommendations.



Value Engineering Job Plan

Reporting

Following the CRAVE study the Team Leader assembles all study documentation into the draft/final reports:

- Publish Results – Prepare a draft and a final CRAVE study report; distribute printed and electronic copies as needed.

The CRAVE study is complete when the report is issued as a record of the CRAVE team's analysis and development work, as well as the Project Team's implementation dispositions for the recommendations.

Appendix C

CRAVE Study Attendee List

Appendix C. CRAVE Study Attendee List

								VE Study Attendees ***I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)***				
May 2018							**June**	**NAME**	**ORGANIZATION**	**POSITION/DISCIPLINE**	**TELEPHONE**	**CELL**
9	**10**	**15**	**16**	**17**	**23**	**24**	**6**				**E-MAIL**	
✓	✓	✓	✓	✓	✓	✓	✓	Benitez, Hong	FDOT	Proj. Dev. Manager	503.470.5219	
											Hong.benitez@dot.state.fl.us	
							✓	Benitez, Lola	FDOT	PM	305.470.5471	
											Auraliz.Benitez@dot.state.fl.us	
✓								Breton, Ramon	Kimley-Horn	Roadway	407.427.1616	
											Ramon.breton@kimley-horn.com	
						✓		Boude, Julio	AECOM	CPS Team	305.262.7466	
											Julio.boude@aecom.com	
✓	✓	✓	✓	✓	✓	✓		Buffington, Lori	HDR	Team Assistant	403.423.3893	503.260.3167
											lori.buffington@hdrinc.com	
✓	✓							Bustamante, Javier	FDOT	Right-of-way	305.470.5470	
											Javier.bustamanle@dot.state.fl.us	
	✓						✓	Cabrera, Mario	FDOT	Construction	305.210.4962	
											Mario.cabrera@dot.state.fl.us	
			✓					Cann, Jeannie	FDOT	Maintenance		
											jeannie.cann@dot.state.fl.us	
	✓						✓	Casals, Alex	FDOT	Right-of-Way	305.470.5473	
											Alejandro.casals@dot.state.fl.us	

VE Study Attendees
I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)

May 2018							June	NAME	ORGANIZATION	POSITION/DISCIPLINE	TELEPHONE	CELL
9	10	15	16	17	23	24	6				E-MAIL	
	✓					✓		Carrero-Vila, Rodney	FDOT	TSM&O	305.640.7346	
											Rodney-carrero-vila@dot.state.fl.us	
	✓		✓			✓		Cotroneo, Gary	FDOT	Right-of-way/Appraisal	305.470.5173	
											gary.cotroneo@dot.state.fl.us	
✓	✓	✓	✓	✓	✓	✓	✓	Danielson, John	HDR	Bridge	954.331.0915	
											john.danielson@hdrinc.com	
✓	✓		✓			✓		Defrant, Jacques	FDOT	Traffic Engineer	305.470.5385	
											Jacques.defrant@dot.state.fl.us	
✓	✓		✓			✓		Dominguez, Mario	FDOT	Drainage Engineer	305.470.5482	
											Mario.dominguez@dot.state.fl.us	
	✓							Dubrovsky, Mikhail	FDOT	Plans Review	305.640.7448	
											Mikhail.dubrovsky@dot.state.fl.us	
	✓					✓		Flores, Marta	FDOT	Deputy Right-of-Way Manager	305.470.5123	
											Marta.flores@dot.state.fl.us	
✓	✓	✓	✓	✓	✓		✓	Garr, Peter	HDR	Bridge	305.728.7424	305.788.2005
											peter.garr@hdrinc.com	
	✓							Halim, Emma	FDOT	Production Project Manager	305.470.5178	
											Emma.halim@dot.state.fl.us	
✓	✓	✓	✓	✓	✓	✓		Hume, Will	HDR	Traffic	503.727.3928	
											will.hume@hdrinc.com	

VE Study Attendees

I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)

May 2018							June	NAME	ORGANIZATION	POSITION/DISCIPLINE	TELEPHONE	CELL
9	10	15	16	17	23	24	6				E-MAIL	
✓			✓			✓	✓	Huynm, Dat	FDOT	Planning & Env. Admin	305.470.5201	
											Dat.huynm@dot.state.fl.us	
	✓						✓	Iglesias, Daniel	FDOT	District Design Engineer	305.470.5266	
											Daniel.iglesias@dot.state.fl.us	
						✓	✓	James, Steven	FDOT	Environmental Manager	305.470.5221	
											Steve.james@dot.state.fl.us	
✓			✓			✓	✓	Jeffries, Ken	FDOT	Planning Manager	305.470.5445	
											Ken.jeffries@dot.state.fl.us	
✓	✓					✓	✓	Jungman, Andrew	FDOT	Environmental/Impact Reviewer	305.470.5420	
											Andrew.lungman@dot.state.fl.us	
	✓							Khan, Sandi	FDOT	District MOT Services	305.781.3360	
											Sandi.khan@dot.state.fl.us	
✓	✓		✓			✓		King, Jenn	AECom	CPS Team – Eng/Env	305.514.2438	
											Jenn.king@aecom.com	
✓	✓					✓		Kyle, Greg	Kimley-Horn	Project Manager	954.535.5105	561.236.3211
											Greg.kyle@kimley-horn.com	
	✓							Letts, Gregg	C2S Engineering	ITS/Tolls	954.914.9349	
											Gregg.letts@c2sengineering.com	
✓	✓							Long, Blane	HDR	Team Leader	360.570.4411	360.742.7682
											blane.long@hdrinc.com	

VE Study Attendees
I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)

May 2018							June	NAME	ORGANIZATION	POSITION/DISCIPLINE	TELEPHONE	CELL
9	10	15	16	17	23	24	6				E-MAIL	
						✓		Lu, Jinyan	FDOT	Traffic Ops	305.470.5156	
											Jinyan.lu@dot.state.fl.us	
✓								Mairena, David	AECom	CPS Team – Roadway	305.514.2433	
											David.mairena@aecom.com	
✓							✓	Marrero, Renato	FDOT	Maintenance	305.470.5359	
											Renato.marrero@dot.state.fl.us	
✓	✓	✓	✓	✓	✓	✓	✓	Mason, Calvin	FDOT	Drainage		
											Calvin.mason@dot.state.fl.us	
✓	✓		✓			✓		McWilliams, John	Kimley-Horn	Deputy Project Manager	954.535.5106	954.873.9407
											John.mcwilliams@kimley-horn.com	
			✓					Meitin, Omar	FDOT	Traffic Ops		
											omar.meitin@dot.state.fl.us	
✓								Michel, Marceau	FDOT	Drainage Engineer	305.470.5348	
											Marceau.michel@dot.state.fl.us	
✓								Miranda, Leana	FDOT	PE Trainee		
											Leana.miranda@dot.state.fl.us	
✓	✓	✓	✓	✓	✓	✓	✓	Ortiz, Juliana	HDR	Roadway	305.728.7435	
											juliana.ortiz@hdrinc.com	
✓			✓					Perez, Camila	FDOT	Project Manager	305.470.5342	
											Camila.perez@dot.state.fl.us	

VE Study Attendees
I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)

May 2018							June	NAME	ORGANIZATION	POSITION/DISCIPLINE	TELEPHONE	CELL
9	10	15	16	17	23	24	6				E-MAIL	
✓			✓			✓		Perez, Saul	AECom	CPS Team – Structures	305-514-2432	
											Saul.perez@aecom.com	
✓	✓		✓			✓		Ramirez, Gabriela	Kimley-Horn	CPS Team – Roadway	305.535.7727	305.992.3642
											Gabriela.rairez@kimley-horn.com	
						✓		Rivadeneira, Diego	FDOT	Right-of-way	305.470.5161	
											Diego.Rivadeneira@dot.state.fl.us	
✓	✓					✓		Rodriguez, Javier	FDOT	TSM&O Program Engineer	305.640.7307	
											Javier.rodriguez@dot.state.fl.us	
✓	✓							Rodriguez, Xenia	FDOT	Utilities	305.470.5234	
											xenia.rodriguez@dot.state.fl.us	
✓	✓	✓	✓		✓	✓	✓	Sabbag, Anthony	HDR	Construction		305.796.8600
											anthony.sabbag@hdrinc.com	
						✓		Salazar, Leonard	FDOT	Deputy District Maintenance Engineer	305.470.5498	
											Leonard.salazar@dot.state.fl.us	
	✓					✓		Salazar, Ricardo	FDOT	Drainage	305.470.5264	
											Richardo.salazar@dot.state.fl.us	
						✓		Schot, Kevin	FDOT	Consultant Management	305.470.5400	
											Kevin.schot@dot.state.fl.us	

VE Study Attendees
I-95 Planning Study from MM "0" to Broward County Line (VE Team in Blue)

May 2018							June	NAME	ORGANIZATION	POSITION/DISCIPLINE	TELEPHONE	CELL
9	10	15	16	17	23	24	6				E-MAIL	
						✓	✓	Solaun, Judy	FDOT	District Consultant Project Management Engineer (DCPME)	305.470.5343	
											Judy.Solaun@dot.state.fl.us	
✓								Solaun-Dominguez, Heidi	FDOT	Assist. District Construction Eng	305.962.4612	
											Heidi.solaun@dot.state.fl.us	
						✓		Somohano, Victor	AECOM	CPS Team – Structures	305.514.2440	
											Victor.somohano@aecom.com	
✓	✓					✓		Tavella, Chris	FDOT	Structural Engineer	305.470.5254	
											Chris.tavella@dot.state.fl.us	
		✓	✓	✓	✓	✓	✓	Theiler, Jose	HDR	Team Leader	704.338.6845	561.386.3879
											jose.theiler@hdrinc.com	
	✓							Worthen, Kevin	FDOT	Right-of-Way	305.470.5434	
											Kevin.worthen@dot.state.fl.us	
						✓	✓	Wang, Bay-Ying	FDOT	Construction Management	305.470.5211	
											Baoying.wang@dot.state.fl.us	
✓	✓	✓	✓	✓	✓	✓	✓	Waterston, Steven	HDR	Roadway/TTCP	407.420.4154	407.398.2878
											steve.waterston@hdrinc.com	
✓	✓							YeeFong, Shereen	FDOT	Planner/Env. Support	305.470.5343	
											Shereen.yeefong@dot.state.fl.us	
	✓		✓					Zhang, Hailing	FDOT	District Structure Design Engineer	305.470.5484	
											Hailing.zhang@dot.state.fl.us	

Appendix D

Project Estimates

Segment	Alternative 1			
	KH Doc	Calculated		
		Low	Most Likely	High
1	$2,109,949,000	$1,710,104,672	$2,106,817,123	$2,544,938,292
2	$727,291,000	$591,940,153	$729,745,091	$882,027,771
3	$1,700,650,000	$1,394,774,462	$1,732,503,345	$2,106,966,231
4	$498,695,000	$403,609,937	$499,218,447	$605,036,577
5	$340,155,000	#REF!	$337,214,040	#REF!
Total	**$5,376,740,000**	**#REF!**	**$5,405,498,047**	**#REF!**

Segment	Alternative 2			
	KH Doc	Calculated	Calculated	Calculated
		Low	Most Likely	High
1	$2,099,266,000	$1,720,510,255	$2,119,626,851	$2,560,401,455
2	$504,169,000	$411,930,245	$501,399,510	$599,731,168
3	$848,605,000	$696,764,502	$840,296,542	$997,364,677
4	$494,842,000	$400,295,665	$494,100,112	$597,839,149
5	$256,356,000	$226,259,689	$253,569,708	$280,879,727
Total	**$4,203,238,000**	**$3,455,760,356**	**$4,208,992,722**	**$5,036,216,176**

Alternative 1

DESCRIPTION	UNIT	Quantity					UNIT PRICE					Calculated total cost		
		Low		ML		High	Low		Likely		High	Low	Likely	High
SEGMENT A TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	22.6	0%	22.6	0%	22.6	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$32,770,000	$36,160,000	$39,550,000
Retaining Wall - 18' average height - $32/SF	SF	355,558	-10%	395,064	10%	434,570	$28	-13%	$32	13%	$36	$9,955,613	$12,642,048	$15,644,534
Retaining Wall - 24' average height - $32/SF	SF	713,988	-10%	793,320	10%	872,652	$28	-13%	$32	13%	$36	$19,991,664	$25,386,240	$31,415,472
Noise Wall - 16' average height - $30/SF	SF	411,840	-10%	457,600	10%	503,360	$27	-10%	$30	10%	$33	$11,119,680	$13,728,000	$16,610,880
Existing Structures Demolition	SF	2,061,187	-10%	2,290,208	10%	2,519,229	$54	-10%	$60	10%	$66	$111,304,109	$137,412,480	$166,269,101
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	5,931,572	-10%	6,590,635	10%	7,249,699	$180	-10%	$200	10%	$220	$1,067,682,870	$1,318,127,000	$1,594,933,670
Subtotal												$1,252,823,936	$1,543,455,768	$1,864,423,657
Additional Drainage	5%											$62,641,197	$77,172,788	$93,221,183
Additional Signing Structures	1%											$12,528,239	$15,434,558	$18,644,237
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$62,641,197	$77,172,788	$93,221,183
Utility Relocations (Added during workshop)	0.5%											$6,264,120	$7,717,279	$9,322,118
Additional MOT	10%											$125,282,394	$154,345,577	$186,442,366
Contingency	15%											$187,923,590	$231,518,365	$279,663,549
SEGMENT A CONSTRUCTION TOTAL												**$1,710,104,672**	**$2,106,817,123**	**$2,544,938,292**
SEGMENT A DESIGN-BUILD DESIGN	6.0%											$102,606,280	$126,409,027	$152,696,298
SEGMENT A DESIGN-BUILD CONSTRUCTION QC	3.0%											$51,303,140	$63,204,514	$76,348,149
SEGMENT A DESIGN-BUILD TOTAL												**$1,864,014,093**	**$2,296,430,664**	**$2,773,982,738**
PDE & RFP	4.0%											$74,560,564	$91,857,227	$110,959,310
ENVIRONMENTAL (EIS)	2.0%											$37,280,282	$45,928,613	$55,479,655
PROJECT MANAGEMENT	3.0%											$55,920,423	$68,892,920	$83,219,482
FDOT CONSTRUCTION ENGINEERING	5.0%											$93,200,705	$114,821,533	$138,699,137
SEGMENT A RIGHT-OF-WAY (RESIDENTIAL) TOTAL		89	-5%	94	5%	99	$225,000	-10%	$ 250,000	10%	$275,000	$20,092,500	$23,500,000	$27,142,500
SEGMENT A RIGHT-OF-WAY (COMMERCIAL) TOTAL		75	-5%	79	5%	83	$1,250,000	-11%	$ 1,400,000	11%	$1,550,000	$93,812,500	$110,600,000	$128,572,500
SEGMENT A RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		41	-5%	43	5%	45	$90,000	-10%	$ 100,000	10%	$110,000	$3,676,500	$4,300,000	$4,966,500
SEGMENT A RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		40	-5%	42	5%	44	$900,000	-10%	$ 1,000,000	10%	$1,100,000	$35,910,000	$42,000,000	$48,510,000
SEGMENT A TOTAL												**$ 2,278,467,566**	**$ 2,798,330,957**	**$ 3,371,531,822**

Alternative 1

SEGMENT B TOTAL													
Roadway Reconstruction (Cost per mile models)	Lane Miles	23.4	0%	23.4	0%	23.4	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$33,930,000	$37,440,000	$40,950,000
Retaining Wall - 18' average height - $32/SF	SF	500,564	-10%	556,182	10%	611,800	$28	-13%	$32	13%	$36	$14,015,786	$17,797,824	$22,024,807
Retaining Wall - 24' average height - $32/SF	SF	820,433	-10%	911,592	10%	1,002,751	$28	-13%	$32	13%	$36	$22,972,118	$29,170,944	$36,099,043
Noise Wall - 16' average height - $30/SF	SF	264,960	-10%	294,400	10%	323,840	$27	-10%	$30	10%	$33	$7,153,920	$8,832,000	$10,686,720
Existing Structures Demolition	SF	519,787	-10%	577,541	10%	635,295	$54	-10%	$60	10%	$66	$28,068,493	$34,652,460	$41,929,477
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	1,926,562	-10%	2,140,624	10%	2,354,686	$170	-11%	$190	11%	$210	$327,515,472	$406,718,560	$494,484,144
Subtotal												$433,655,789	$534,611,788	$646,174,191
Additional Drainage	5%											$21,682,789	$26,730,589	$32,308,710
Additional Signing Structures	1%											$4,336,558	$5,346,118	$6,461,742
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$21,682,789	$26,730,589	$32,308,710
Utility Relocations (Added during workshop)	0.5%											$2,168,279	$2,673,059	$3,230,871
Additional MOT	10%											$43,365,579	$53,461,179	$64,617,419
Contingency	15%											$65,048,368	$80,191,768	$96,926,129
SEGMENT B CONSTRUCTION TOTAL												**$591,940,153**	**$729,745,091**	**$882,027,771**
SEGMENT B DESIGN-BUILD DESIGN	6.0%											$35,516,409	$43,784,705	$52,921,666
SEGMENT B DESIGN-BUILD CONSTRUCTION QC	3.0%											$17,758,205	$21,892,353	$26,460,833
SEGMENT B DESIGN-BUILD TOTAL												**$645,214,766**	**$795,422,149**	**$961,410,270**
PDE & RFP	4.0%											$25,808,591	$31,816,886	$38,456,411
ENVIRONMENTAL (EIS)	2.0%											$12,904,295	$15,908,443	$19,228,205
PROJECT MANAGEMENT	3.0%											$19,356,443	$23,862,664	$28,842,308
FDOT CONSTRUCTION ENGINEERING	5.0%											$32,260,738	$39,771,107	$48,070,514
SEGMENT B RIGHT-OF-WAY (RESIDENTIAL) TOTAL		49	-5%	52	5%	55	$225,000	-10%	$ 250,000	10%	$275,000	$11,115,000	$13,000,000	$15,015,000
SEGMENT B RIGHT-OF-WAY (COMMERCIAL) TOTAL		32	-5%	34	5%	36	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$40,375,000	$47,600,000	$55,335,000
SEGMENT B RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		15	-5%	16	5%	17	$90,000	-10%	$ 100,000	10%	$ 110,000	$1,368,000	$1,600,000	$1,848,000
SEGMENT B RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		14	-5%	15	5%	16	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$12,825,000	$15,000,000	$17,325,000
SEGMENT B TOTAL												**$ 801,227,834**	**$ 983,981,250**	**$ 1,185,530,708**

Alternative 1

SEGMENT C TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	60.4	0%	60.4	0%	60.4	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$87,580,000	$96,640,000	$105,700,000
Retaining Wall - 18' average height - $32/SF	SF	509,944	-10%	566,604	10%	623,264	$28	-13%	$32	13%	$36	$14,278,421	$18,131,328	$22,437,518
Retaining Wall - 24' average height - $32/SF	SF	2,811,542	-10%	3,123,936	10%	3,436,330	$28	-13%	$32	13%	$36	$78,723,187	$99,965,952	$123,707,866
Noise Wall - 16' average height - $30/SF	SF	106,560	-10%	118,400	10%	130,240	$27	-10%	$30	10%	$33	$2,877,120	$3,552,000	$4,297,920
Existing Structures Demolition	SF	701,878	-10%	779,864	10%	857,850	$54	-10%	$60	10%	$66	$37,901,390	$46,791,840	$56,618,126
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	5,164,211	-10%	5,738,012	10%	6,311,813	$155	-11%	$175	11%	$195	$800,452,674	$1,004,152,100	$1,230,803,574
Subtotal												$1,021,812,792	$1,269,233,220	$1,543,565,004
Additional Drainage	5%											$51,090,640	$63,461,661	$77,178,250
Additional Signing Structures	1%											$10,218,128	$12,692,332	$15,435,650
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$51,090,640	$63,461,661	$77,178,250
Utility Relocations (Added during workshop)	0.5%											$5,109,064	$6,346,166	$7,717,825
Additional MOT	10%											$102,181,279	$126,923,322	$154,356,500
Contingency	15%											$153,271,919	$190,384,983	$231,534,751
SEGMENT C CONSTRUCTION TOTAL												**$1,394,774,462**	**$1,732,503,345**	**$2,106,966,231**
SEGMENT C DESIGN-BUILD DESIGN	6.0%											$83,686,468	$103,950,201	$126,417,974
SEGMENT C DESIGN-BUILD CONSTRUCTION QC	3.0%											$41,843,234	$51,975,100	$63,208,987
SEGMENT C DESIGN-BUILD TOTAL												**$1,520,304,163**	**$1,888,428,646**	**$2,296,593,192**
PDE & RFP	4.0%											$60,812,167	$75,537,146	$91,863,728
ENVIRONMENTAL (EIS)	2.0%											$30,406,083	$37,768,573	$45,931,864
PROJECT MANAGEMENT	3.0%											$45,609,125	$56,652,859	$68,897,796
FDOT CONSTRUCTION ENGINEERING	5.0%											$76,015,208	$94,421,432	$114,829,660
SEGMENT C RIGHT-OF-WAY (RESIDENTIAL) TOTAL		118	-5%	124	5%	130	$225,000	-10%	$ 250,000	10%	$275,000	$26,505,000	$31,000,000	$35,805,000
SEGMENT C RIGHT-OF-WAY (COMMERCIAL) TOTAL		79	-5%	83	5%	87	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$98,562,500	$116,200,000	$135,082,500
SEGMENT C RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		18	-5%	19	5%	20	$90,000	-10%	$ 100,000	10%	$ 110,000	$1,624,500	$1,900,000	$2,194,500
SEGMENT C RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		17	-5%	18	5%	19	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$15,390,000	$18,000,000	$20,790,000
SEGMENT C TOTAL												**$ 1,875,228,746**	**$ 2,319,908,657**	**$ 2,811,988,239**

Alternative 1

SEGMENT D TOTAL													
Roadway Reconstruction (Cost per mile models)	Lane Miles	18.8	0%	18.8	0%	18.8	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$27,260,000	$30,080,000	$32,900,000
Retaining Wall - 18' average height - $32/SF	SF	932,342	-10%	1,035,936	10%	1,139,530	$28	-13%	$32	13%	$36	$26,105,587	$33,149,952	$41,023,066
Retaining Wall - 24' average height - $32/SF	SF	133,942	-10%	148,824	10%	163,706	$28	-13%	$32	13%	$36	$3,750,365	$4,762,368	$5,893,430
Noise Wall - 16' average height - $30/SF	SF	33,120	-10%	36,800	10%	40,480	$27	-10%	$30	10%	$33	$894,240	$1,104,000	$1,335,840
Existing Structures Demolition	SF	554,339	-10%	615,932	10%	677,525	$54	-10%	$60	10%	$66	$29,934,295	$36,955,920	$44,716,663
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	1,298,378	-10%	1,442,642	10%	1,586,906	$160	-11%	$180	11%	$200	$207,740,448	$259,675,560	$317,381,240
Subtotal												$295,684,935	$365,727,800	$443,250,239
Additional Drainage	5%											$14,784,247	$18,286,390	$22,162,512
Additional Signing Structures	1%											$2,956,849	$3,657,278	$4,432,502
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$14,784,247	$18,286,390	$22,162,512
Utility Relocations (Added during workshop)	0.5%											$1,478,425	$1,828,639	$2,216,251
Additional MOT	10%											$29,568,494	$36,572,780	$44,325,024
Contingency	15%											$44,352,740	$54,859,170	$66,487,536
SEGMENT D CONSTRUCTION TOTAL												**$403,609,937**	**$499,218,447**	**$605,036,577**
SEGMENT D DESIGN-BUILD DESIGN	6.0%											$24,216,596	$29,953,107	$36,302,195
SEGMENT D DESIGN-BUILD CONSTRUCTION QC	3.0%											$12,108,298	$14,976,553	$18,151,097
SEGMENT D DESIGN-BUILD TOTAL												**$439,934,831**	**$544,148,107**	**$659,489,868**
PDE & RFP	4.0%											$17,597,393	$21,765,924	$26,379,595
ENVIRONMENTAL (EIS)	2.0%											$8,798,697	$10,882,962	$13,189,797
PROJECT MANAGEMENT	3.0%											$13,198,045	$16,324,443	$19,784,696
FDOT CONSTRUCTION ENGINEERING	5.0%											$21,996,742	$27,207,405	$32,974,493
SEGMENT D RIGHT-OF-WAY (RESIDENTIAL) TOTAL		8	-5%	8	5%	8	$225,000	-10%	$ 250,000	10%	$275,000	$1,710,000	$2,000,000	$2,310,000
SEGMENT D RIGHT-OF-WAY (COMMERCIAL) TOTAL		3	-5%	3	5%	3	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$3,562,500	$4,200,000	$4,882,500
SEGMENT D RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		1	-5%	1	5%	1	$90,000	-10%	$ 100,000	10%	$ 110,000	$85,500	$100,000	$115,500
SEGMENT D RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		1	-5%	1	5%	1	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$855,000	$1,000,000	$1,155,000
SEGMENT D TOTAL												**$ 507,738,707**	**$ 627,628,842**	**$ 760,281,450**

Alternative 1

SEGMENT E TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	50.2	0%	50.2	0%	50.2	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$72,790,000	$80,320,000	$87,850,000
Retaining Wall - 18' average height - $32/SF	SF	#REF!	-10%	572,994	10%	#REF!	$28	-13%	$32	13%	$36	#REF!	$18,335,808	#REF!
Retaining Wall - 24' average height - $32/SF	SF	#REF!	-10%	0	10%	#REF!	$28	-13%	$32	13%	$36	#REF!	$0	#REF!
Noise Wall - 16' average height - $30/SF	SF	#REF!	-10%	192,000	10%	#REF!	$27	-10%	$30	10%	$33	#REF!	$5,760,000	#REF!
Existing Structures Demolition	SF	#REF!	-10%	59,672	10%	#REF!	$54	-10%	$60	10%	$66	#REF!	$3,580,320	#REF!
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	#REF!	-10%	794,555	10%	#REF!	$155	-11%	$175	11%	$195	#REF!	$139,047,125	#REF!
Subtotal												#REF!	$247,043,253	#REF!
Additional Drainage	5.0%											#REF!	$12,352,163	#REF!
Additional Signing Structures	1.0%											#REF!	$2,470,433	#REF!
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											#REF!	$12,352,163	#REF!
Utility Relocations (Added during workshop)	0.5%											#REF!	$1,235,216	#REF!
Additional MOT	10%											#REF!	$24,704,325	#REF!
Contingency	15.0%											#REF!	$37,056,488	#REF!
SEGMENT E CONSTRUCTION TOTAL												**#REF!**	**$337,214,040**	**#REF!**
SEGMENT E DESIGN-BUILD DESIGN	6.0%											#REF!	$20,232,842	#REF!
SEGMENT E DESIGN-BUILD CONSTRUCTION QC	3.0%											#REF!	$10,116,421	#REF!
SEGMENT E DESIGN-BUILD TOTAL												**#REF!**	**$367,563,304**	**#REF!**
PDE & RFP	4.0%											#REF!	$14,702,532	#REF!
ENVIRONMENTAL (EIS)	2.0%											#REF!	$7,351,266	#REF!
PROJECT MANAGEMENT	3.0%											#REF!	$11,026,899	#REF!
FDOT CONSTRUCTION ENGINEERING	5.0%											#REF!	$18,378,165	#REF!
SEGMENT E RIGHT-OF-WAY (RESIDENTIAL) TOTAL		18	-5%	19	5%	20	$225,000	-10%	$ 250,000	10%	$275,000	$4,061,250	$4,750,000	$5,486,250
SEGMENT E RIGHT-OF-WAY (COMMERCIAL) TOTAL		2	-5%	2	5%	2	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$2,375,000	$2,800,000	$3,255,000
SEGMENT E RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		1	-5%	1	5%	1	$90,000	-10%	$ 100,000	10%	$ 110,000	$85,500	$100,000	$115,500
SEGMENT E RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		1	-5%	1	5%	1	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$855,000	$1,000,000	$1,155,000
SEGMENT E TOTAL												**#REF!**	**$ 427,672,167**	**#REF!**

ALTERNATIVE 1 DESIGN-BUILD TOTAL	**#REF!**	**$5,891,992,871**	**#REF!**
ALTERNATIVE 1 RIGHT-OF-WAY TOTAL	**$374,846,250**	**$440,650,000**	**$511,061,250**
ALTERNATIVE 1 PM, PE, EIS, CE TOTAL	**#REF!**	**$824,879,002**	**#REF!**
	#REF!	**$7,157,521,873**	**#REF!**

Alternative 2

DESCRIPTION	UNIT	Quantity					UNIT PRICE					Calculated total cost		
		Low		ML		High	Low		Likely		High	Low	Likely	High
SEGMENT A TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	22.5	0%	22.5	0%	22.5	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$32,625,000	$36,000,000	$39,375,000
Retaining Wall - 18' average height - $32/SF	SF	280,357	-10%	311,508	10%	342,659	$28	-13%	$32	13%	$36	$7,850,002	$9,968,256	$12,335,717
Retaining Wall - 24' average height - $32/SF	SF	742,738	-10%	825,264	10%	907,790	$28	-13%	$32	13%	$36	$20,796,653	$26,408,448	$32,680,454
Noise Wall - 16' average height - $30/SF	SF	472,320	-10%	524,800	10%	577,280	$27	-10%	$30	10%	$33	$12,752,640	$15,744,000	$19,050,240
Existing Structures Demolition	SF	2,061,187	-10%	2,290,208	10%	2,519,229	$54	-10%	$60	10%	$66	$111,304,109	$137,412,480	$166,269,101
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	5,972,882	-10%	6,636,535	10%	7,300,189	$180	-10%	$200	10%	$220	$1,075,118,670	$1,327,307,000	$1,606,041,470
Subtotal												$1,260,447,073	$1,552,840,184	$1,875,751,982
Additional Drainage	5%											$63,022,354	$77,642,009	$93,787,599
Additional Signing Structures	1%											$12,604,471	$15,528,402	$18,757,520
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$63,022,354	$77,642,009	$93,787,599
Utility Relocations (Added during workshop)	0.5%											$6,302,235	$7,764,201	$9,378,760
Additional MOT	10%											$126,044,707	$155,284,018	$187,575,198
Contingency	15%											$189,067,061	$232,926,028	$281,362,797
SEGMENT A CONSTRUCTION TOTAL												**$1,720,510,255**	**$2,119,626,851**	**$2,560,401,455**
SEGMENT A DESIGN-BUILD DESIGN	6.0%											$103,230,615	$127,177,611	$153,624,087
SEGMENT A DESIGN-BUILD CONSTRUCTION QC	3.0%											$51,615,308	$63,588,806	$76,812,044
SEGMENT A DESIGN-BUILD TOTAL												**$1,875,356,178**	**$2,310,393,268**	**$2,790,837,586**
PDE & RFP	4.0%											$75,014,247	$92,415,731	$111,633,503
ENVIRONMENTAL (EIS)	2.0%											$37,507,124	$46,207,865	$55,816,752
PROJECT MANAGEMENT	3.0%											$56,260,685	$69,311,798	$83,725,128
FDOT CONSTRUCTION ENGINEERING	5.0%											$93,767,809	$115,519,663	$139,541,879
SEGMENT A RIGHT-OF-WAY (RESIDENTIAL) TOTAL		104	-5%	109	5%	114	$225,000	-10%	$ 250,000	10%	$275,000	$23,298,750	$27,250,000	$31,473,750
SEGMENT A RIGHT-OF-WAY (COMMERCIAL) TOTAL		65	-5%	68	5%	71	$1,250,000	-11%	$ 1,400,000	11%	$1,550,000	$80,750,000	$95,200,000	$110,670,000
SEGMENT A RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		55	-5%	58	5%	61	$90,000	-10%	$ 100,000	10%	$110,000	$4,959,000	$5,800,000	$6,699,000
SEGMENT A RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		55	-5%	58	5%	61	$900,000	-10%	$ 1,000,000	10%	$1,100,000	$49,590,000	$58,000,000	$66,990,000
SEGMENT A TOTAL												**$ 2,296,503,793**	**$ 2,820,098,325**	**$ 3,397,387,599**

Alternative 2

SEGMENT B TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	40.4	0%	40.4	0%	40.4	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$58,580,000	$64,640,000	$70,700,000
Retaining Wall - 18' average height - $32/SF	SF	424,148	-10%	471,276	10%	518,404	$28	-13%	$32	13%	$36	$11,876,155	$15,080,832	$18,662,530
Retaining Wall - 24' average height - $32/SF	SF	768,247	-10%	853,608	10%	938,969	$28	-13%	$32	13%	$36	$21,510,922	$27,315,456	$33,802,877
Noise Wall - 16' average height - $30/SF	SF	302,400	-10%	336,000	10%	369,600	$27	-10%	$30	10%	$33	$8,164,800	$10,080,000	$12,196,800
Existing Structures Demolition	SF	519,787	-10%	577,541	10%	635,295	$54	-10%	$60	10%	$66	$28,068,493	$34,652,460	$41,929,477
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	1,021,059	-10%	1,134,510	10%	1,247,961	$170	-11%	$190	11%	$210	$173,580,030	$215,556,900	$262,071,810
Subtotal												$301,780,399	$367,325,648	$439,363,493
Additional Drainage	5%											$15,089,020	$18,366,282	$21,968,175
Additional Signing Structures	1%											$3,017,804	$3,673,256	$4,393,635
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$15,089,020	$18,366,282	$21,968,175
Utility Relocations (Added during workshop)	0.5%											$1,508,902	$1,836,628	$2,196,817
Additional MOT	10%											$30,178,040	$36,732,565	$43,936,349
Contingency	15%											$45,267,060	$55,098,847	$65,904,524
SEGMENT B CONSTRUCTION TOTAL												**$411,930,245**	**$501,399,510**	**$599,731,168**
SEGMENT B DESIGN-BUILD DESIGN	6.0%											$24,715,815	$30,083,971	$35,983,870
SEGMENT B DESIGN-BUILD CONSTRUCTION QC	3.0%											$12,357,907	$15,041,985	$17,991,935
SEGMENT B DESIGN-BUILD TOTAL												**$449,003,967**	**$546,525,465**	**$653,706,973**
PDE & RFP	4.0%											$17,960,159	$21,861,019	$26,148,279
ENVIRONMENTAL (EIS)	2.0%											$8,980,079	$10,930,509	$13,074,139
PROJECT MANAGEMENT	3.0%											$13,470,119	$16,395,764	$19,611,209
FDOT CONSTRUCTION ENGINEERING	5.0%											$22,450,198	$27,326,273	$32,685,349
SEGMENT B RIGHT-OF-WAY (RESIDENTIAL) TOTAL		99	-5%	104	5%	109	$225,000	-10%	$ 250,000	10%	$ 275,000	$22,230,000	$26,000,000	$30,030,000
SEGMENT B RIGHT-OF-WAY (COMMERCIAL) TOTAL		30	-5%	32	5%	34	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$38,000,000	$44,800,000	$52,080,000
SEGMENT B RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		13	-5%	14	5%	15	$90,000	-10%	$ 100,000	10%	$ 110,000	$1,197,000	$1,400,000	$1,617,000
SEGMENT B RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		13	-5%	14	5%	15	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$11,970,000	$14,000,000	$16,170,000
SEGMENT B TOTAL												**$ 585,261,523**	**$ 709,239,031**	**$ 845,122,949**

Alternative 2

SEGMENT C TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	103.3	0%	103.3	0%	103.3	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$149,785,000	$165,280,000	$180,775,000
Retaining Wall - 18' average height - $32/SF	SF	708,799	-10%	787,554	10%	866,309	$28	-13%	$32	13%	$36	$19,846,361	$25,201,728	$31,187,138
Retaining Wall - 24' average height - $32/SF	SF	1,468,217	-10%	1,631,352	10%	1,794,487	$28	-13%	$32	13%	$36	$41,110,070	$52,203,264	$64,601,539
Noise Wall - 16' average height - $30/SF	SF	106,560	-10%	118,400	10%	130,240	$27	-10%	$30	10%	$33	$2,877,120	$3,552,000	$4,297,920
Existing Structures Demolition	SF	701,878	-10%	779,864	10%	857,850	$54	-10%	$60	10%	$66	$37,901,390	$46,791,840	$56,618,126
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	1,569,274	-10%	1,743,638	10%	1,918,002	$165	-11%	$185	11%	$205	$258,930,243	$322,573,030	$393,190,369
Subtotal												$510,450,185	$615,601,862	$730,670,093
Additional Drainage	5%											$25,522,509	$30,780,093	$36,533,505
Additional Signing Structures	1%											$5,104,502	$6,156,019	$7,306,701
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$25,522,509	$30,780,093	$36,533,505
Utility Relocations (Added during workshop)	0.5%											$2,552,251	$3,078,009	$3,653,350
Additional MOT	10%											$51,045,018	$61,560,186	$73,067,009
Contingency	15%											$76,567,528	$92,340,279	$109,600,514
SEGMENT C CONSTRUCTION TOTAL												**$696,764,502**	**$840,296,542**	**$997,364,677**
SEGMENT C DESIGN-BUILD DESIGN	6.0%											$41,805,870	$50,417,792	$59,841,881
SEGMENT C DESIGN-BUILD CONSTRUCTION QC	3.0%											$20,902,935	$25,208,896	$29,920,940
SEGMENT C DESIGN-BUILD TOTAL												**$759,473,307**	**$915,923,230**	**$1,087,127,498**
PDE & RFP	4.0%											$30,378,932	$36,636,929	$43,485,100
ENVIRONMENTAL (EIS)	2.0%											$15,189,466	$18,318,465	$21,742,550
PROJECT MANAGEMENT	3.0%											$22,784,199	$27,477,697	$32,613,825
FDOT CONSTRUCTION ENGINEERING	5.0%											$37,973,665	$45,796,162	$54,356,375
SEGMENT C RIGHT-OF-WAY (RESIDENTIAL) TOTAL		365	-5%	384	5%	403	$225,000	-10%	$ 250,000	10%	$ 275,000	$82,080,000	$96,000,000	$110,880,000
SEGMENT C RIGHT-OF-WAY (COMMERCIAL) TOTAL		149	-5%	157	5%	165	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$186,437,500	$219,800,000	$255,517,500
SEGMENT C RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		17	-5%	18	5%	19	$90,000	-10%	$ 100,000	10%	$ 110,000	$1,539,000	$1,800,000	$2,079,000
SEGMENT C RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		17	-5%	18	5%	19	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$15,390,000	$18,000,000	$20,790,000
SEGMENT C TOTAL												**$ 1,151,246,070**	**$ 1,379,752,483**	**$ 1,628,591,848**

Alternative 2

SEGMENT D TOTAL													
Roadway Reconstruction (Cost per mile models)	Lane Miles	22.8	0%	22.8	0%	22.8	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$33,060,000	$36,480,000	$39,900,000
Retaining Wall - 18' average height - $32/SF	SF	828,905	-10%	921,006	10%	1,013,107	$28	-13%	$32	13%	$36	$23,209,351	$29,472,192	$36,471,838
Retaining Wall - 24' average height - $32/SF	SF	487,490	-10%	541,656	10%	595,822	$28	-13%	$32	13%	$36	$13,649,731	$17,332,992	$21,449,578
Noise Wall - 16' average height - $30/SF	SF	41,760	-10%	46,400	10%	51,040	$27	-10%	$30	10%	$33	$1,127,520	$1,392,000	$1,684,320
Existing Structures Demolition	SF	554,339	-10%	615,932	10%	677,525	$54	-10%	$60	10%	$66	$29,934,295	$36,955,920	$44,716,663
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	1,201,725	-10%	1,335,250	10%	1,468,775	$160	-11%	$180	11%	$200	$192,276,000	$240,345,000	$293,755,000
Subtotal												$293,256,898	$361,978,104	$437,977,398
Additional Drainage	5%											$14,662,845	$18,098,905	$21,898,870
Additional Signing Structures	1%											$2,932,569	$3,619,781	$4,379,774
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$14,662,845	$18,098,905	$21,898,870
Utility Relocations (Added during workshop)	0.5%											$1,466,284	$1,809,891	$2,189,887
Additional MOT	10%											$29,325,690	$36,197,810	$43,797,740
Contingency	15%											$43,988,535	$54,296,716	$65,696,610
SEGMENT D CONSTRUCTION TOTAL												**$400,295,665**	**$494,100,112**	**$597,839,149**
SEGMENT D DESIGN-BUILD DESIGN	6.0%											$24,017,740	$29,646,007	$35,870,349
SEGMENT D DESIGN-BUILD CONSTRUCTION QC	3.0%											$12,008,870	$14,823,003	$17,935,174
SEGMENT D DESIGN-BUILD TOTAL												**$436,322,275**	**$538,569,122**	**$651,644,672**
PDE & RFP	4.0%											$17,452,891	$21,542,765	$26,065,787
ENVIRONMENTAL (EIS)	2.0%											$8,726,446	$10,771,382	$13,032,893
PROJECT MANAGEMENT	3.0%											$13,089,668	$16,157,074	$19,549,340
FDOT CONSTRUCTION ENGINEERING	5.0%											$21,816,114	$26,928,456	$32,582,234
SEGMENT D RIGHT-OF-WAY (RESIDENTIAL) TOTAL		10	-5%	11	5%	12	$225,000	-10%	$ 250,000	10%	$ 275,000	$2,351,250	$2,750,000	$3,176,250
SEGMENT D RIGHT-OF-WAY (COMMERCIAL) TOTAL		4	-5%	4	5%	4	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$4,750,000	$5,600,000	$6,510,000
SEGMENT D RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		2	-5%	2	5%	2	$90,000	-10%	$ 100,000	10%	$ 110,000	$171,000	$200,000	$231,000
SEGMENT D RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		1	-5%	1	5%	1	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$855,000	$1,000,000	$1,155,000
SEGMENT D TOTAL												**$ 505,534,644**	**$ 623,518,799**	**$ 753,947,176**

Alternative 2

SEGMENT E TOTAL														
Roadway Reconstruction (Cost per mile models)	Lane Miles	47.5	0%	47.5	0%	47.5	$1,450,000	-9%	$1,600,000	9%	$1,750,000	$68,875,000	$76,000,000	$83,125,000
Retaining Wall - 18' average height - $32/SF	SF	567,792	-10%	567,792	10%	567,792	$28	-13%	$32	13%	$36	$15,898,176	$18,169,344	$20,440,512
Retaining Wall - 24' average height - $32/SF	SF	0	-10%	0	10%	0	$28	-13%	$32	13%	$36	$0	$0	$0
Noise Wall - 16' average height - $30/SF	SF	192,000	-10%	192,000	10%	192,000	$27	-10%	$30	10%	$33	$5,184,000	$5,760,000	$6,336,000
Existing Structures Demolition	SF	59,672	-10%	59,672	10%	59,672	$54	-10%	$60	10%	$66	$3,222,288	$3,580,320	$3,938,352
Bridges (unit price shown is the rounded average from total bridge cost table)	SF	483,857	-10%	483,857	10%	483,857	$150	-12%	$170	12%	$190	$72,578,550	$82,255,690	$91,932,830
Subtotal												$165,758,014	$185,765,354	$205,772,694
Additional Drainage	5.0%											$8,287,901	$9,288,268	$10,288,635
Additional Signing Structures	1.0%											$1,657,580	$1,857,654	$2,057,727
Signalization, Tolling and ITS (Increase from 3% to 5% during workshop)	5%											$8,287,901	$9,288,268	$10,288,635
Utility Relocations (Added during workshop)	0.5%											$828,790	$928,827	$1,028,863
Additional MOT	10%											$16,575,801	$18,576,535	$20,577,269
Contingency	15.0%											$24,863,702	$27,864,803	$30,865,904
SEGMENT E CONSTRUCTION TOTAL												**$226,259,689**	**$253,569,708**	**$280,879,727**
SEGMENT E DESIGN-BUILD DESIGN	6.0%											$13,575,581	$15,214,182	$16,852,784
SEGMENT E DESIGN-BUILD CONSTRUCTION QC	3.0%											$6,787,791	$7,607,091	$8,426,392
SEGMENT E DESIGN-BUILD TOTAL												**$246,623,061**	**$276,390,982**	**$306,158,903**
PDE & RFP	4.0%											$9,864,922	$11,055,639	$12,246,356
ENVIRONMENTAL (EIS)	2.0%											$4,932,461	$5,527,820	$6,123,178
PROJECT MANAGEMENT	3.0%											$7,398,692	$8,291,729	$9,184,767
FDOT CONSTRUCTION ENGINEERING	5.0%											$12,331,153	$13,819,549	$15,307,945
SEGMENT E RIGHT-OF-WAY (RESIDENTIAL) TOTAL		65	-5%	68	5%	71	$225,000	-10%	$ 250,000	10%	$ 275,000	$14,535,000	$17,000,000	$19,635,000
SEGMENT E RIGHT-OF-WAY (COMMERCIAL) TOTAL		10	-5%	10	5%	11	$1,250,000	-11%	$ 1,400,000	11%	$ 1,550,000	$11,875,000	$14,000,000	$16,275,000
SEGMENT E RIGHT-OF-WAY (VACANT RESIDENTIAL) TOTAL		1	-5%	1	5%	1	$90,000	-10%	$ 100,000	10%	$ 110,000	$85,500	$100,000	$115,500
SEGMENT E RIGHT-OF-WAY (VACANT COMMERCIAL) TOTAL		1	-5%	1	5%	1	$900,000	-10%	$ 1,000,000	10%	$ 1,100,000	$855,000	$1,000,000	$1,155,000
SEGMENT E TOTAL												**$ 308,500,790**	**$ 347,185,719**	**$ 386,201,649**

ALTERNATIVE 2 CONSTRUCTION TOTAL	**$3,766,778,788**	**$4,587,802,068**	**$5,489,475,632**
ALTERNATIVE 2 RIGHT-OF-WAY TOTAL	**$552,919,000**	**$649,700,000**	**$753,249,000**
ALTERNATIVE 2 PE TOTAL	**$527,349,030**	**$642,292,289**	**$768,526,589**
	$4,847,046,819	**$5,879,794,357**	**$7,011,251,221**

Appendix E

Risk Analysis Sheets

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 CNS 10.01
Sub-Project	I-95 Alt 1	Status	Active

Traffic Control

Risk Trigger		Flowchart Activity	Watch List

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
					37	7	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	20	5	

There is currently 10% for MOT in the base. Also, the cost per lane mile includes 8% for MOT and the cost for the structures per square foot includes a percentage for MOT. At this time we feel the costs are sufficiently shown within the base but should be looked at in more detail as the project moves into PD&E.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 CNS 10.01
Sub-Project	I-95 Alt 2	Status	Active

Traffic Control

Risk Trigger		Flowchart Activity	Watch List

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
					37	7	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	18	3	

There is currently 10% for MOT in the base. Also, the cost per lane mile includes 8% for MOT and the cost for the structures per square foot includes a percentage for MOT. At this time we feel the costs are sufficiently shown within the base but should be looked at in more detail as the project moves into PD&E.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 CNS 40.01
Sub-Project	I-95 Alt 1	Status	Active

Construction Schedule

Risk Trigger		Flowchart Activity	Same risk for 180, 380 & 580
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
95%					37	1	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	24.00	48.00	24.70	20	1	

The base has 60 months for segment 1 and 2; 48 for segment 3; 48 for segments 4 and 5. This includes additional time for special events that occur within the area.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 CNS 40.01
Sub-Project	I-95 Alt 2	Status	Active

Construction Schedule

Risk Trigger		Flowchart Activity	Same risk for 180, 380 & 580
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					37	2	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	24.00	36.00	18.00	18	1	

The base has 60 months for segment 1 and 2; 36 for segment 3; 48 for segments 4 and 5. This includes additional time for special events that occur within the area.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 CNS 90.01
Sub-Project	I-95 Alt 1	Status	Active

Construction Staging

Risk Trigger		Flowchart Activity	Same risk for 180, 380 & 580
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					32	7	
Cost ($M)	$1.00	$3.00	$5.00	$2.25	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	17	5	

Limited availability for locations within Alt 1. May add additional costs for contractor to find right-of-way to store equipment and materials.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 DES 10.01
Sub-Project	I-95 Alt 1	Status	Active

Revisions due to sea level rise

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					12	7	
Cost ($M)	$50.00	$100.00	$150.00	$50.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	6	5	

Roadway will have to be designed higher to account for the possibility of future sea level rise. Assumption is the level would have to be raised 2 feet.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 DES 10.01
Sub-Project	I-95 Alt 2	Status	Active

Revisions due to sea level rise

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					5	7	
Cost ($M)	$100.00	$200.00	$300.00	$100.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	4	3	

Roadway will have to be designed higher to account for the possibility of future sea level rise. Assumption is the level would have to be raised 2 feet.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 DES 10.02
Sub-Project	I-95 Alt 1	Status	Active

Reduce Typical Sections

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					21	7	
Cost ($M)	-$30.00	-$20.00	-$10.00	-$15.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	11	5	

Opportunity that delineators could be used instead of wide shoulders and barriers on the express lanes.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 DES 10.02
Sub-Project	I-95 Alt 2	Status	Active

Reduce Typical Sections

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					14	7	
Cost ($M)	-$100.00	-$50.00	-$25.00	-$40.63	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	7	3	

Opportunity that delineators could be used instead of wide shoulders and barriers to separate the express lanes from the general purpose lanes. Assumption is this would eliminate 2 lanes.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ENV 10.01
Sub-Project	I-95 Alt 1	Status	Active

Environmental Completion

Risk Trigger		Flowchart Activity	110 = 75% probability 310 & 510 = 65% probability
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					37	3	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	18.00	24.00	13.50	20	2	

Currently in the base schedule there are 3 years scheduled to complete environmental document. The risk is this could take longer to complete this process. This would be prepared as three different EIS' per program. There is a risk this would be considered improper segmentation. Worst case is this could take up to 5 years.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ENV 10.01
Sub-Project	I-95 Alt 2	Status	Active

Environmental Completion

Risk Trigger		Flowchart Activity	110 = 75% probability 310 & 510 = 65% probability
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					37	3	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	18.00	24.00	13.50	18	2	

Currently in the base schedule there are 3 years scheduled to complete environmental document. The risk is this could take longer to complete this process. This would be prepared as three different EIS' per program. There is a risk this would be considered improper segmentation. Worst case is this could take up to 5 years.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ENV 50.01
Sub-Project	I-95 Alt 1	Status	Active

Possible Contaminated Sites

Risk Trigger		Flowchart Activity	150 weighted 45% 350 weighted 47% 550 weighted 8%
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					13	7	
Cost ($M)	$70.00	$96.00	$120.00	$47.83	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	7	5	

Currently there is a possibility of over 241 contaminated sites on the project corridor. 30% of the properties that have been identified will be resolved by property owners. The remaining 70% will be resolved by the state. The cost of clean-up per site could range from $300,000 to $500,000, depending on the level of contamination. This will also cover the cost of asbestos survey and monitoring for contamination on other sites.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ENV 50.01
Sub-Project	I-95 Alt 2	Status	Active

Possible Contaminated Sites

Risk Trigger		Flowchart Activity	150 weighted 34% 350 weighted 54% 550 weighted 12%
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					11	7	
Cost ($M)	$77.00	$102.00	$128.00	$51.08	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	6	3	

Currently there is a possibility of over 257 contaminated sites on the project corridor.30% of the properties that have been identified will be resolved by property owners. The remaining 70% will be resolved by the state. The cost of clean-up per site could range from $300,000 to $500,000, depending on the level of contamination. This will also cover the cost of asbestos survey and monitoring for contamination on other sites.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ENV 70.01
Sub-Project	I-95 Alt 1	Status	Active

Additional Drainage

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					16	7	
Cost ($M)	$20.00	$40.00	$80.00	$21.67	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	9	5	

No provision has been made for the additional cost of taking water to treatment locations or detention locations. Base currently has 5% for drainage. Could go as high as an additional 2%.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ENV 70.01
Sub-Project	I-95 Alt 2	Status	Active

Additional Drainage

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					19	7	
Cost ($M)	$15.00	$30.00	$60.00	$16.25	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	10	3	

No provision has been made for the additional cost of taking water to treatment locations or detention locations. Base currently has 5% for drainage. Could go as high as an additional 2%.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 MGT 900.01
Sub-Project	I-95 Alt 1	Status	Active

Tolling

Risk Trigger		Flowchart Activity	Watch List

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					37	7	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	20	5	

Three or four new tolling sites (per direction). Needs turnpike involvement to get planning level range of cost. Express lanes will be tolled. Currently there is 5% in the base to cover ITS, tolling, and signalization.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 MGT 900.01
Sub-Project	I-95 Alt 2	Status	Active

MOT for Tolling

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
					37	7	
Cost ($M)	$10.00	$20.00	$30.00	$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	18	3	

Currently the MOT in the base is 10% of construction cost. The risk is that in order to keep tolling opertional during construction, additional cost will be incurred. Assume 1% additional at the high end.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 MGT 900.02
Sub-Project	I-95 Alt 1	Status	Active

Tolling

Risk Trigger		Flowchart Activity	Watch List

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
					37	7	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	20	5	

Three or four new tolling sites (per direction). Needs turnpike involvement to get planning level range of cost. Express lanes will be tolled. Currently there is 5% in the base to cover ITS, tolling, and signalization.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 MGT 900.03
Sub-Project	I-95 Alt 1	Status	Active

MOT for Tolling

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					19	6	
Cost ($M)	$10.00	$20.00	$40.00	$16.25	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	2.00	4.00	6.00	3.00	10	4	

Currently the MOT in the base is 10% of construction cost. The risk is that in order to keep tolling opertional during construction, additional cost will be incurred. Assume 1% additional at the high end.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 PSP 30.01
Sub-Project	I-95 Alt 1	Status	Active

Public and Political Buy-in

Risk Trigger		Flowchart Activity	Same risk for 100, 300, 500
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					37	3	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	18.00	24.00	13.50	20	2	

Throughout the course of the project, the public is going to want additional requirements or NOT want parts of the project incorporated. Requires visualization component to the PD&E process. It may take extra time to work and communicate with the public or even a change to bridge type.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 PSP 30.01
Sub-Project	I-95 Alt 2	Status	Active

Public and Political Buy-in

Risk Trigger		Flowchart Activity	Same risk for 100, 300, 500
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
					37	7	
Cost ($M)				$0.00	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)	12.00	18.00	24.00	0.00	18	3	

Throughout the course of the project, the public is going to want additional requirements or NOT want parts of the project incorporated. Requires visualization component to the PD&E process. It may take extra time to work and communicate with the public or even a change to bridge type.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.01
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquisition (Residential - Segments 1 & 2)

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					28	7	
Cost ($M)	$36.20	$42.40	$49.00	$4.25	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	14	5	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.01
Sub-Project	I-95 Alt 2	Status	Active

ROQ Acquisition (Residential - Segments 1 & 2)

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					24	7	
Cost ($M)	$51.70	$60.50	$69.80	$6.06	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	12	3	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.02
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquisition (Commercial - Segments 1 & 2)

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					3	7	
Cost ($M)	$182.90	$215.20	$249.70	$107.78	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	1	5	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.02
Sub-Project	I-95 Alt 2	Status	Active

ROW Acquisition (Residential - Segment 3)

Risk Trigger		Flowchart Activity	350
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					22	7	
Cost ($M)	$83.60	$97.80	$113.00	$9.80	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	11	3	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.03
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquistion (Residential - Segment 3)

Risk Trigger		Flowchart Activity	350
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					30	7	
Cost ($M)	$28.10	$32.90	$38.00	$3.30	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	15	5	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.03
Sub-Project	I-95 Alt 2	Status	Active

ROW Acquisition (Residential - Segments 4 & 5)

Risk Trigger		Flowchart Activity	550
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					33	7	
Cost ($M)	$17.10	$20.10	$23.20	$2.01	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	16	3	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.04
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquistion (Residential - Segments 4 & 5)

Risk Trigger		Flowchart Activity	550
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
10%					35	7	
Cost ($M)	$5.90	$7.00	$8.00	$0.70	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	18	5	

Currently in the base estimate there is approximately $250,000 for residential parcel for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $100,000. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.04
Sub-Project	I-95 Alt 2	Status	Active

ROW Acquistion (Commercial - Segment 1 & 2)

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					4	7	
Cost ($M)	$180.30	$212.00	$245.90	$106.18	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	3	3	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.05
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquistion (Commercial - Segment 3)

Risk Trigger		Flowchart Activity	350
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					9	7	
Cost ($M)	$114.00	$134.20	$155.90	$67.23	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	4	5	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.05
Sub-Project	I-95 Alt 2	Status	Active

ROW Acquistion (Commercial - Segment 3)

Risk Trigger		Flowchart Activity	350
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					2	7	
Cost ($M)	$201.80	$237.80	$276.30	$119.11	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	2	3	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 50.06
Sub-Project	I-95 Alt 1	Status	Active

ROW Acquistion (Commercial - Segment 4 & 5)

Risk Trigger		Flowchart Activity	550
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					27	7	
Cost ($M)	$7.60	$9.00	$10.40	$4.50	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	13	5	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 50.06
Sub-Project	I-95 Alt 2	Status	Active

ROW Acquistion (Commercial - Segment 4 & 5)

Risk Trigger		Flowchart Activity	550
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					25	7	
Cost ($M)	$9.20	$10.80	$12.50	$5.41	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	13	3	

Currently in the base estimate there is approximately $1.7M for commercial parcels for purchase and relocation. There is a risk that this price could double if we have unwilling sellers, etc. These include relocation costs. (Determine cost later) Vacant lots were priced at $1.0M. Time within the right-of-way schedule includes the time it takes to clear the right-of-way, including condemnation. Right-of-way acquisition cannot begin until ROD (Record of Decision).

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 ROW 900.01
Sub-Project	I-95 Alt 1	Status	Active

Downtown Development

Risk Trigger		Flowchart Activity	150

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
95%					6	7	
Cost ($M)	$50.00	$100.00	$125.00	$91.04	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	2	5	

Murals and ODAs are big dollar items. There are high-rise buildings that will be impacted by the corridor project. Adler property (building and vacant site, including damages $25M to $100M) Publix property ($25M)

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 ROW 900.01
Sub-Project	I-95 Alt 2	Status	Active

Downtown Development

Risk Trigger		Flowchart Activity	150

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
95%					1	7	
Cost ($M)	$90.00	$140.00	$165.00	$129.04	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	1	3	

Murals and ODAs are big dollar items. There are high-rise buildings that will be impacted by the corridor project. Clipping the garage of one building (government garage $40M). Adler property (building and vacant site, including damages $25M to $100M). Publix property ($25M)

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 STG 10.01
Sub-Project	I-95 Alt 1	Status	Active

Bridge Prices - Segment 1 & 2

Risk Trigger		Flowchart Activity	180
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					7	7	
Cost ($M)	$87.30	$174.60	$261.90	$87.30	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	3	5	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 STG 10.01
Sub-Project	I-95 Alt 2	Status	Active

Bridge Prices - Segments 1 & 2

Risk Trigger		Flowchart Activity	180

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					8	7	
Cost ($M)	$77.70	$155.40	$233.10	$77.70	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	5	3	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 STG 10.02
Sub-Project	I-95 Alt 1	Status	Active

Bridge Prices - Segment 3

Risk Trigger		Flowchart Activity	380

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					10	7	
Cost ($M)	$57.40	$114.80	$172.10	$57.39	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	5	5	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 STG 10.02
Sub-Project	I-95 Alt 2	Status	Active

Bridge Prices - Segment 3

Risk Trigger		Flowchart Activity	380

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					17	7	
Cost ($M)	$17.40	$38.90	$52.30	$18.78	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	8	3	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 STG 10.03
Sub-Project	I-95 Alt 1	Status	Active

Bridge Prices - Segment 4 & 5

Risk Trigger		Flowchart Activity	580
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					15	7	
Cost ($M)	$22.40	$44.70	$67.10	$22.36	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	8	5	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 STG 10.03
Sub-Project	I-95 Alt 2	Status	Active

Bridge Prices - Segment 4 & 5

Risk Trigger		Flowchart Activity	580
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					18	7	
Cost ($M)	$18.20	$36.40	$54.60	$18.20	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	9	3	

Base cost price per square foot of strutures incluldes the cost of the bridge plus an extra 25% to cover the cost of MOT, mobilization, and some complexity. There is a risk that the cost per square foot could be even higher. Assume an extra $30/square foot at the high end. $10 at the low end, $20 most likely.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 UTL 20.01
Sub-Project	I-95 Alt 1	Status	Active

Florida Gas Transmission Global Settlement Agreement

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
95%					31	7	
Cost ($M)	$2.00	$3.00	$6.00	$3.17	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	16	5	

Relocation of Florida Gas is not inluded in the project cost. Currently their gas lines go through the Golden Glade Interchange. The FGT lines have one crossing in Segment 4 and one in Segment 5.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 UTL 20.01
Sub-Project	I-95 Alt 2	Status	Active

Florida Gas Transmission Global Settlement Agreement

Risk Trigger		Flowchart Activity	150
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
95%					29	7	
Cost ($M)	$2.00	$4.00	$6.00	$3.80	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	15	3	

Relocation of Florida Gas is not inluded in the project cost. Currently their gas lines go through the Golden Glade Interchange. The FGT lines have one crossing in Segment 4 and one in Segment 5.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 UTL 20.02
Sub-Project	I-95 Alt 1	Status	Active

FPL Transmission Line/Pole Relocation

Risk Trigger		Flowchart Activity	150

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					36	7	
Cost ($M)	$0.50	$1.00	$2.00	$0.54	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	19	5	

There is a crossing in Segment 4 that may cost upward to $1M to relocate.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 UTL 20.02
Sub-Project	I-95 Alt 2	Status	Active

FPL Transmission Line/Pole Relocation

Risk Trigger		Flowchart Activity	150

Dependency & Correlation	

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
75%					34	7	
Cost ($M)	$0.50	$1.00	$2.00	$0.81	Project Rank Cost	Project Rank Schedule	5/10/2018
Schedule (Mo)				0.00	17	3	

There is a crossing in Segment 4 that may cost upward to $1M to relocate.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A1 UTL 20.03
Sub-Project	I-95 Alt 1	Status	Active

Utility Relocations

Risk Trigger		Flowchart Activity	Weighted - All Construction Activities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					23	7	
Cost ($M)	$10.00	$15.00	$20.00	$7.50	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	12	5	

There is a possibility that all utilities may be reimbursed given that this is Interstate work. Assume thre is a 50/50 chance that this will occur for all utilities. Include 0.5% of the base cost as the impact.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Project	I-95 Project Corridor Study	Risk ID	I-95 A2 UTL 20.03
Sub-Project	I-95 Alt 2	Status	Active

Utility Relocations

Risk Trigger		Flowchart Activity	Weighted - All Construction Activiities
Dependency & Correlation			

Pre-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Program Rank Cost	Program Rank Schedule	Date Pre Last Updated
50%					26	7	
Cost ($M)	$5.00	$10.00	$15.00	$5.00	Project Rank Cost	Project Rank Schedule	5/11/2018
Schedule (Mo)				0.00	14	3	

There is a possibility that all utilities may be reimbursed given that this is Interstate work. Assume thre is a 50/50 chance that this will occur for all utilities. Include 0.5% of the base cost as the impact.

Post-Response Quantification

Probability	Low	Most Likely	High	Total Expected Value Impact	Additional Cost to Respond	Date Post Last Updated
Cost ($M)				$0.00	Strategy	
Schedule (Mo)				0.00		

Monitoring and Control

Risk Owner	Risk Aging	From		Status Interval
		To		

Review Comments

Last Review	Date MC Last Updated
Next Review	**Risk Assignment**

Appendix F

CRAVE Study Agenda

Memo

Date:	Friday, April 27, 2018
Project:	I-95 Planning Study from MM “0” to Broward Co. Line
To:	VE Team Members
From:	Jose Theiler, PE, CVS®
Subject:	Value Engineering Study

Congratulations!!! You have been chosen to participate at this Value Engineering Study because of your expertise and valuable contributions to the project.

This memo is to introduce some of the expectations for the upcoming Value Engineering (VE) study. I’m looking forward to working with you on this endeavor. My hope is that this memo will provide information to you about the project and our work together.

If you have any questions, please direct them to me, Jose Theiler, at 704-338-6845 (office), 561-386-3879 (cell), or e-mail: jose.theiler@hdrinc.com.

Project Background

This project was created to support the Corridor Planning process currently underway for the I-95 from MM “0” to Broward Co. Line project**.**

The corridor overall goals are to evaluate and correct existing geometric deficiencies, address reoccurring bottlenecks, incorporate adjacent projects and studies, extend I-95 Express facility for the length of the corridor, provide additional system to system express connections at:

- US-1 and Rickenbacker Causeway
- Downtown Connector
- Five and six level bridges near downtown
- SB express lanes ending further north
- I-195 and SR 112
- Palmetto Expressway, Florida Turnpike.

The corridor will be delivered in five individual segments as follows:

1. Segment 1 (CBD) – US-1 to SR 836 to accommodate future improvements at I-395/SR 836, SR90/SW 8th St. and to maintain existing downtown connector movements
2. Segment 2 – SR 836 to SR 112 to provide direct express access to and from I-195 (Miami Beach) from the north and to minimize traffic friction on I-95 mainline
3. Segment 3 – SR 112 to South GGI to accommodate future improvements at SR 924/ Gratigny Expressway, to minimize traffic friction on I-95 mainline by consolidating interchange accesses, and to remove NW 69th St Interchange
4. Segment 4 – GGI to accommodate various GGI projects, to provide system to system EL connections for I-95, Palmetto and Turnpike. Not including the connections from SB TPK Express to SB I-95 Express and NB I-95 Express to NB TPK Express (U-turn) to preserve existing infrastructure and to alleviate congestion at NW 167th ST and NW 2nd Ave intersection.
    a. No improvements planned for this interchange as it will be an “as-built” condition.

5. Segment 5 – GGI to County Line to provide improvements with minimal right of way acquisition, address SB bottleneck at Ives Dairy Road

VE Study Dates and Location

The VE study will be held on the following dates at the indicated locations:

May 9 and 10, 2018:
FDOT District 6
Conference Room B

May 15, 16, 17, 2018
HDR Miami Lakes office
15450 New Barn Road, Suite 304
Miami, FL 33014-2169
Main Conference Room

May 23 and 24, 2018
FDOT District 6
Auditorium Rear

June 6, 2018
FDOT District 6
Executive Conference Room

What to Bring

Be sure to bring your normal tools of the trade (e.g., calculator, laptop computer, scale, etc.). Bring a creative and open mind. VE studies are a lot of work, but if you bring your creativity and sense of humor you will have a good time and a rewarding experience.

Ground Rules

A VE study follows a prescribed process that has been proven over many years to produce the best results. This process needs the team members to be fully engaged and have an open mind to "step" outside of the box throughout the week.

To maintain our schedule and provide the best results to the project team, I ask that we follow some basic ground rules:

1. **Please be prepared to attend all eight days.** You were selected to assist on this team based on your expertise. If you cannot be in attendance for the entire time, then please contact me prior to the study so we can make the appropriate arrangements.
   When team members leave part way through, or come and go frequently, the VE team can lose its momentum and cohesiveness.
2. **Please turn your cell phones to vibrate mode during the study.** Unless it is information to assist the team, please try to wait until breaks to return phone calls, check on messages, or sort through e-mails.
3. **No dress code.** I want everyone to be comfortable. The first day does include a site visit, so please dress accordingly. The rest of the time the appropriate dress is what some would call business casual (no ties required).
4. **If you have a laptop please bring it.** We will develop recommendations using templates in Word format and will exchange and share files in USB flash drives.

5. **Our success will be evaluated based on the level of contribution that we bring to the project.** Remember that the goal of any VE study is to "add value" to the project and saving money is just a byproduct. We want to make recommendations based on solid engineering judgment that will result in an improved project.

Value Methodology Job Plan

The VE team will employ the six-phase Value Methodology Job Plan in analyzing the project. This process is recommended by SAVE International® and AASHTO, and is composed of the following phases:

Information Phase – The objective of this phase is to obtain a thorough understanding of the project's design criteria and objectives by reviewing the project's documents and drawings, cost estimates, and schedules. Elements include:

- Overview of the Value Methodology Job Plan
- Understanding of study objectives
- Project Overview and Briefing by the Design team
  - Provide insight on project history, design concepts, environmental issues, etc.
  - Discuss any design concerns and new concepts involved with the project.
  - All appropriate project disciplines should be discussed.
  - Discuss / identify any risks or issues that the VE team should concentrate on.
  - Provide VE team with any specific project constraints.
  - Q&A – Presenters answers questions from the VE team
- Risk Elicitation: We will conduct a brief risk elicitation session to identify and quantify the top 10 risks of the project. This information will help the VE team develop response strategies in the form of recommendations.

Function Analysis Phase – Identifying each of the key functions of the project is the most important phase of VE, as it is the basis for unlocking the creativity of team members. As part of this phase, the team performs the following tasks with the assistance of the VE Team Leader/Facilitator:

- Defines project and risk functions and assigns them to key project components,
- Classifies functions as either "Basic" or "Secondary",
- Sequence functions to understand their relationships using the Function Analysis System Technique (FAST), and
- Assigns cost and performance measures (worth) to each function.

Brainstorming/Creative Phase – During this phase the team will employ creative techniques such as team brainstorming to develop a number of alternative concepts that satisfy the project's "basic" and "supporting" functions, and mitigate project risks.

Evaluation Phase – The purpose of this phase is to evaluate the alternative concepts developed by the VE team during the brainstorming sessions. To that purpose, the team discusses advantages and disadvantages, and uses a number of tools to determine the qualitative and quantitative merits of each concept.

Mid-Study Review With Management Team: at this point, the VE team leader holds a meeting, either privately or with the participation of the VE team, to validate the direction of the team and that ideas moving forward to the development phase do not step outside the boundaries set forth by project constraints.

Development Phase – Those concepts that ranked highest in the evaluation are further developed into VE recommendations. Recommendation narratives, further qualify advantages and disadvantages, drawings, calculations, and lifecycle cost analysis will be prepared for each recommendation.

Presentation Phase – On the final day of the workshop, the VE team presents their finding during an oral presentation to the owner and the project team. Following the workshop, a written report prepared by the facilitator, summarizes the study, its findings and recommendations.

I'm looking forward to working with you on this VE study and I really appreciate each of you blocking time out of your busy schedules to participate. Please don't hesitate to call or e-mail me if you have any questions.

Sincerely,

Jose Theiler, PE CVS®
Sr. Transportation/Civil Value Engineer
HDR Engineering, Inc

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Charlotte, NC 28202-2075
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Agenda

Day 1	Wednesday May 9, 2018 Objective for the day: Learn about VE and the project Location: FDOT District 6 Headquarters – Conference Room B	
08:30	**VE Team Introductions** • Team "meet and greet" • Study kickoff • Team introductions	**All audiences:** Project owner, management, stakeholders, designers, etc.
08:45 *Information Phase*	**VE Process Overview** • An instructional presentation on the principles of value engineering and their application to the project • Review of agenda and expectations	**All audiences** led by Blane Long, CVS®
09:00 *Information Phase*	**Project Overview – I-95 from MM 0 to Broward Co Line** • Purpose and Need of the project • Goals and objectives of the project • Constraints • Commitments • Questions and answers	**All audiences** led by **Project team**
10:00	**Direction and Task Assignment for VE Team**	**All audiences** led by **Discipline Leads/Management**
10:30	**Break**	
10:45 *Information Phase*	**Virtual Site Visit – I-95 from MM 0 to Broward Co Line** • Continue learning about the project • Project insight by discipline leaders	**All audiences** led by **Discipline Leads**
12:00	**Lunch**	
1:00	**Define Performance Attributes**	**All audiences** led by Blane Long, CVS®
2:00 *Information Phase*	**Project Documentation Review** • Review plans/schematics, cross sections, typical sections, traffic control plans, construction constraints • Cost estimate, including construction, right-of-way, utilities, railroad, environmental, etc. • Project schedule, including construction phasing/sequencing, work windows	**VE team**
05:00 PM	**Adjourn**	

Day 2	Thursday May 10, 2018 Objective for the day: Risk Assessment FDOT District 6 Headquarters – Conference Room B	
08:30 *Information Phase*	**Risk management process overview presentation**	**All audiences** led by Blane Long, CVS®
09:00 *Information Phase*	**Base Cost and Schedule Validation Discussion**	**All audiences** led by Blane Long, CVS®
9:30 *Information Phase*	**Risk Elicitation** • Environmental and Permitting • Stormwater and Drainage	**All audiences** led by Blane Long, CVS®
11:00 *Information Phase*	**Risk Elicitation** • Roadway	**All audiences** led by Blane Long, CVS®
12:00	**Lunch**	
1:00 *Information Phase*	**Risk Elicitation** • Geotechnical and Structures Design	**All audiences** led by Blane Long, CVS®
2:00 *Information Phase*	**Risk Elicitation** • Construction and Maintenance of Traffic	**All audiences** led by Blane Long, CVS®
3:00 *Information Phase*	**Risk Elicitation** • Utilities and Right of Way	**All audiences** led by Blane Long, CVS®
4:00 *Information Phase*	**Risk Elicitation** • Tolling and ITS • Others (Contracting, Procurement, Inflation and Market Conditions, Public and Stakeholders, Management and Funding)	**All audiences** led by Blane Long, CVS®
05:00 PM	**Adjourn**	

Day 3	Tuesday May 15, 2018 Objective for the day: Function Analysis and Brainstorming Ideas HDR - 15450 New Barn Road, Suite 304, Miami, FL	
08:30 *Function Analysis Phase*	**Function Analysis** • Review project cost model • Define key project functions using "verb + noun" expressions • Build / Review FAST diagram	**VE team** led by Jose Theiler, PE, CVS®
11:30 AM	**Lunch**	
01:00 PM *Creative Phase*	**Brainstorming Ideas** • Brainstorm alternative ways to perform key functions • Brainstorm ways to improve value of key functions • Begin Evaluation Phase	**VE team** led by Jose Theiler, PE, CVS®
05:00 PM	**Adjourn**	

Day 4	Wednesday, May 16, 2018 Objective for the day: Evaluate Ideas HDR - 15450 New Barn Road, Suite 304, Miami, FL	
08:30 *Creative Phase*	**Brainstorming Ideas** • Summary and last minute ideas to perform key functions	**VE team** led by Jose Theiler, PE, CVS®
08:30 *Evaluation Phase*	**Evaluate Ideas** • Discuss advantages and disadvantages for each idea • Score ideas based on predetermined criteria, to develop further into recommendations	**VE team** led by Jose Theiler, PE, CVS®
12:00	**Lunch**	
01:00	**Mid-point review** **Go-To-Meeting / Conference Call with managers**	**All audiences** led by Jose Theiler, PE, CVS®
01:00	**Develop Recommendations** • Document recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis	**VE Team** led by Jose Theiler, PE, CVS®
02:00 PM	**Adjourn**	

Day 5	Thursday May 17, 2018 Objective for the day: Recap week 1 and Development of Recommendations HDR - 15450 New Barn Road, Suite 304, Miami, FL	
08:30 *Creative Phase*	**Develop Recommendations** • Document recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis	**VE team** led by Jose Theiler, PE, CVS®
12:00	**Lunch**	
01:00 *Development Phase*	**Develop Recommendations** • Document recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis	**VE team** led by Jose Theiler, PE, CVS®
05:00 PM	**Adjourn for the week**	

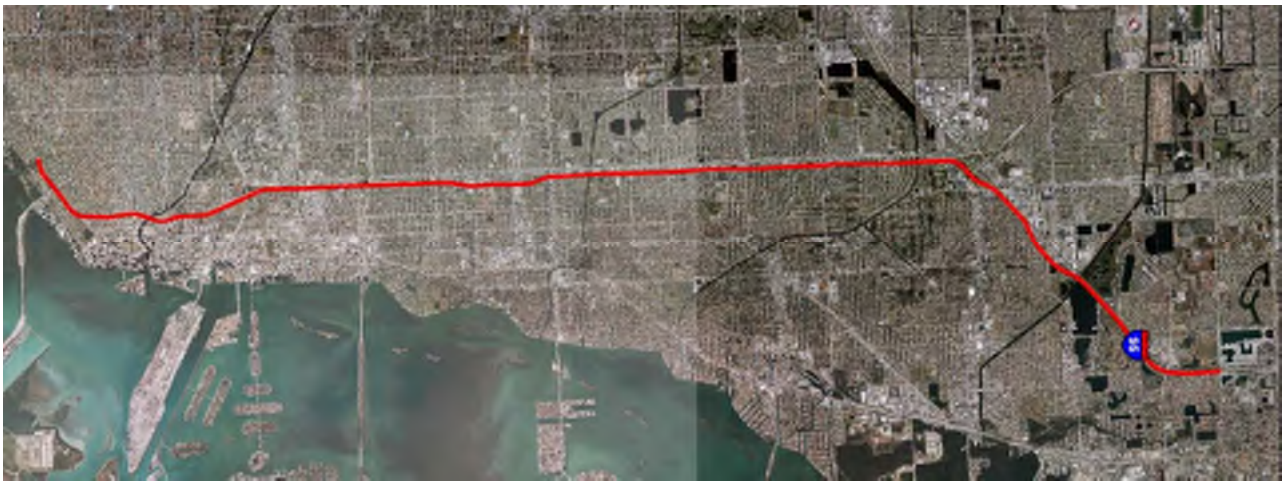
Day 6	Wednesday May 23, 2018 Objective for the day: Development of Recommendations, Peer review, Final Evaluation and Draft Presentation FDOT District 6 Headquarters – District Auditorium Rear	
8:30 *Evaluation Phase*	**Finalize Recommendations** • Document recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis **Prepare Presentation**	**VE team** led by Jose Theiler, PE, CVS®
12:00	**Lunch**	
1:00 *Evaluation Phase*	**Continue Finalizing Recommendations** • Document recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis **Prepare Presentation**	**VE team** led by Jose Theiler, PE, CVS®
05:00 PM	**Adjourn**	

Day 7	Thursday May 24, 2018 Objective for the day: Development of Recommendations, Peer review, Final Evaluation and Draft Presentation FDOT District 6 Headquarters – District Auditorium Rear	
8:30 *Evaluation Phase*	**Finalize Recommendations** • Introduce changes to recommendations o Graphics o Engineering concept write-up o Lifecycle cost analysis **Prepare Presentation**	**VE Team**
12:00	**Lunch**	
01:00 *Development Phase*	**Final Evaluation** o Identify fatal flaws. o Performance evaluation **Finalize Presentation**	**VE team**
02:00	**Peer Review**	**All Audiences**
04:00 PM	**Review and rehearse presentation**	**VE Team**
05:00 PM	**Adjourn**	

Day 8	Wednesday June 6, 2018 Objective for the day: Presentation FDOT District 6 Headquarters – Executive Conference Room	
8:00 *Presentation Phase*	**Rehearsal of Presentation**	**VE team**
9:00	**Presentation**	**All Audiences**
10:30 PM	**Adjourn**	

Appendix G

CRAVE Study Closing Presentation



CRAVE STUDY

I-95 Planning Study from US-1 to Broward Co. Line

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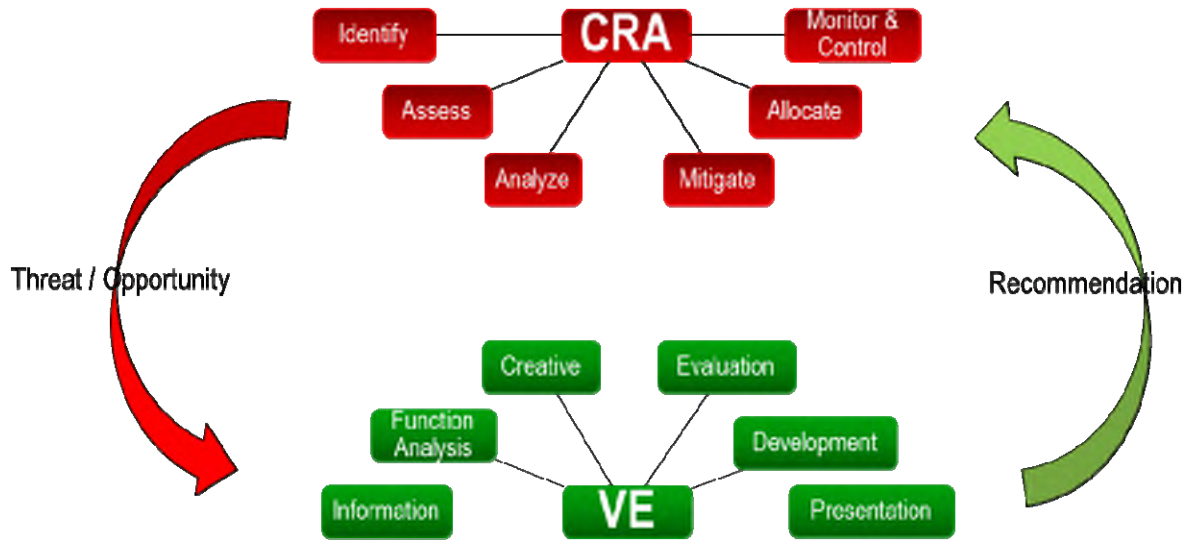
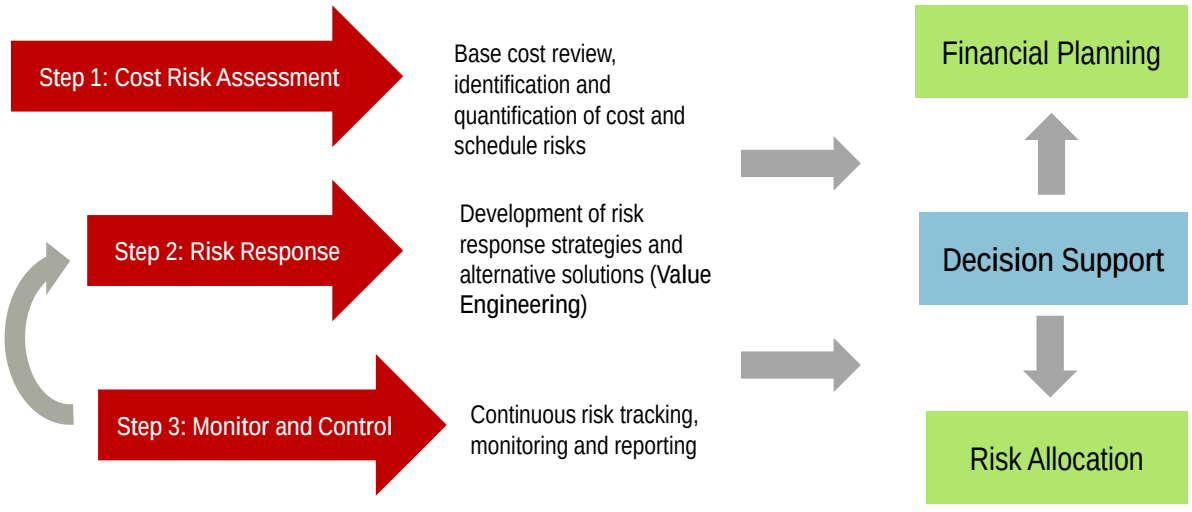
CRAVE Team

- Hong Benitez, FDOT
- Lori Buffington, HDR
- John Danielson, HDR
- Peter Garr, HDR
- Will Hume, HDR
- Blane Long, HDR
- Juliana Ortiz, HDR
- Xenia Rodriguez, FDOT
- Anthony Sabbag, HDR
- Jose Theiler, HDR (Facilitator)
- Steven Waterston, HDR

WHAT IS CRAVE?



CRAVE Process



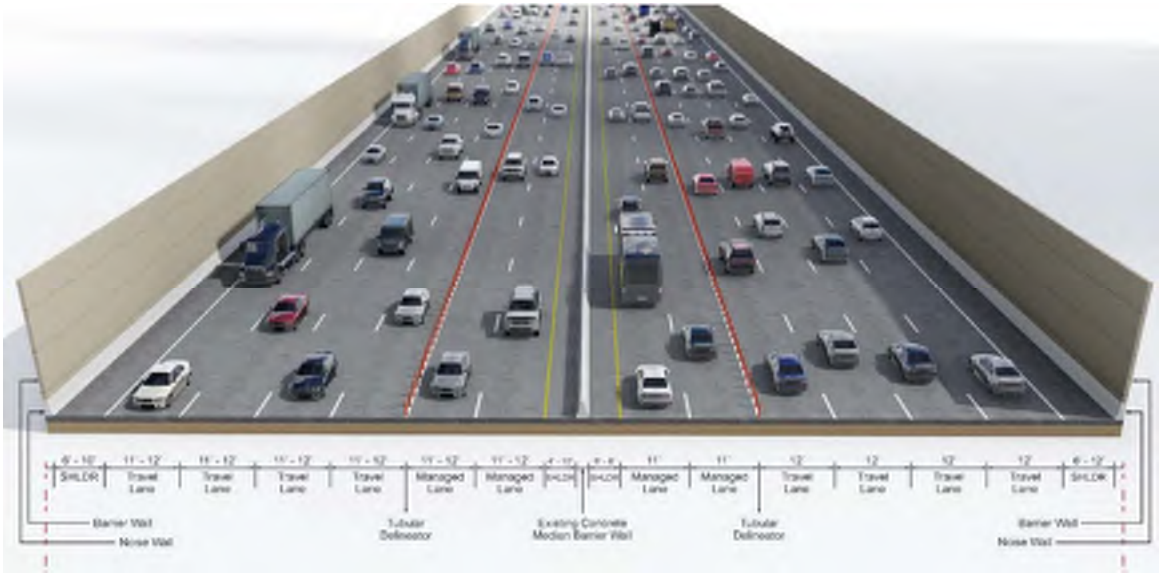
Project Location

Project Information

I-95 Planning Study from US-1 to Broward Co. Line

- Purpose:
  - *Enhance overall traffic operations*
  - *Evaluate and correct existing geometric deficiencies*
  - *Extend I-95 Express Facility for the length of the corridor*
- Divided urban highway
  - 6/8 Express lanes (3/4 in each direction)
  - 10 General purpose lanes (5 in each direction)
- I-95 direct connects for express lanes

Project Information



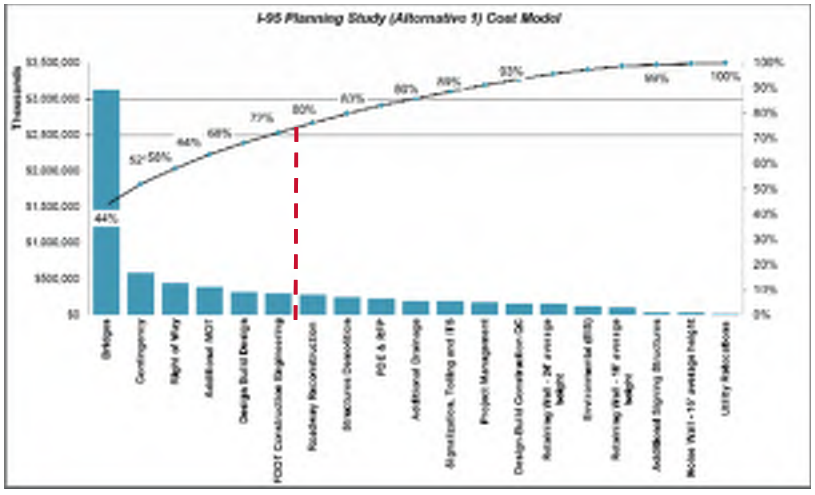
Project Information

Alternative 1

Alternative 2

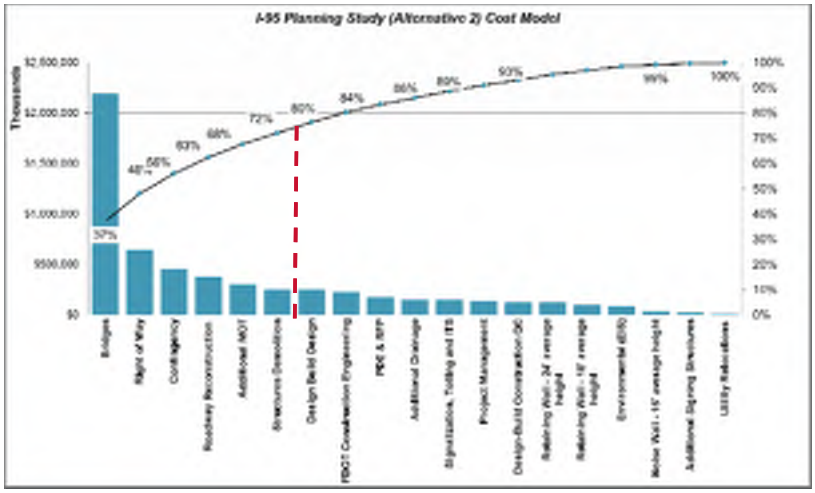
Cost Model – Alternative 1

Description	Alternative 1
Bridges	$ 3,127,720,345.00
Contingency	$ 594,010,774.35
Right of Way	$ 440,650,000.00
Additional MOT	$ 396,007,182.90
Design Build Design	$ 324,329,882.80
FDOT Construction Engineering	$ 294,599,643.54
Roadway Reconstruction	$ 280,640,000.00
Structures Demolition	$ 259,393,020.00
PDE & RFP	$ 235,679,714.83
Additional Drainage	$ 198,003,591.45
Signalization, Tolling and ITS	$ 198,003,591.45
Project Management	$ 176,759,786.12
Design-Build Construction QC	$ 162,164,941.40
Retaining Wall - 24' average height	$ 159,285,504.00
Environmental (EIS)	$ 117,839,857.42
Retaining Wall - 18' average height	$ 100,056,960.00
Additional Signing Structures	$ 39,600,718.29
Noise Wall - 16' average height	$ 32,976,000.00
Utility Relocations	$ 19,800,359.15

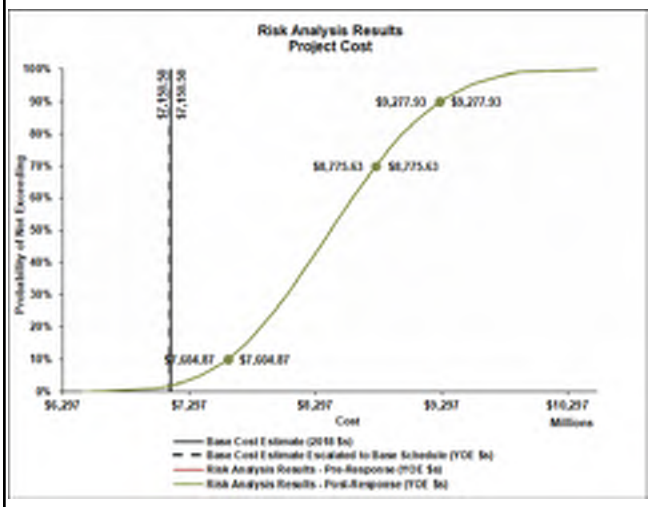


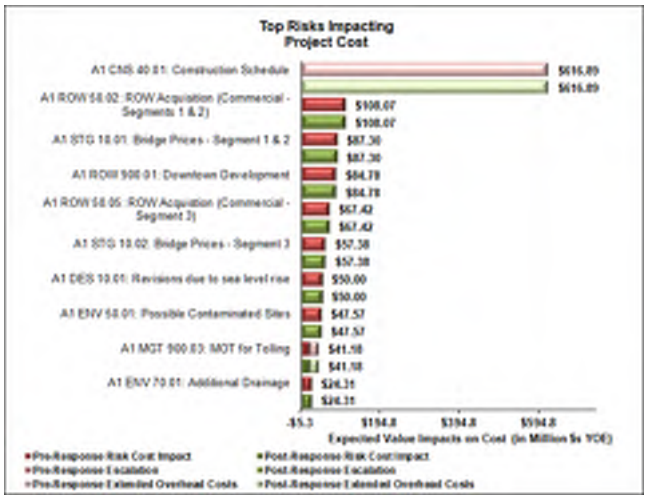
Cost Model – Alternative 2

Description	Alternative 2
Bridges	$ 2,188,037,620.00
Right of Way	$ 649,700,000.00
Contingency	$ 462,526,672.80
Roadway Reconstruction	$ 378,400,000.00
Additional MOT	$ 308,351,115.20
Structures Demolition	$ 259,393,020.00
Design Build Design	$ 252,539,563.35
FDOT Construction Engineering	$ 229,390,103.38
PDE & RFP	$ 183,512,082.70
Additional Drainage	$ 154,175,557.60
Signalization, Tolling and ITS	$ 154,175,557.60
Project Management	$ 137,634,062.03
Design-Build Construction QC	$ 126,269,781.67
Retaining Wall - 24' average height	$ 123,260,160.00
Retaining Wall - 18' average height	$ 97,892,352.00
Environmental (EIS)	$ 91,756,041.35
Noise Wall - 16' average height	$ 36,528,000.00
Additional Signing Structures	$ 30,835,111.52
Utility Relocations	$ 15,417,555.76

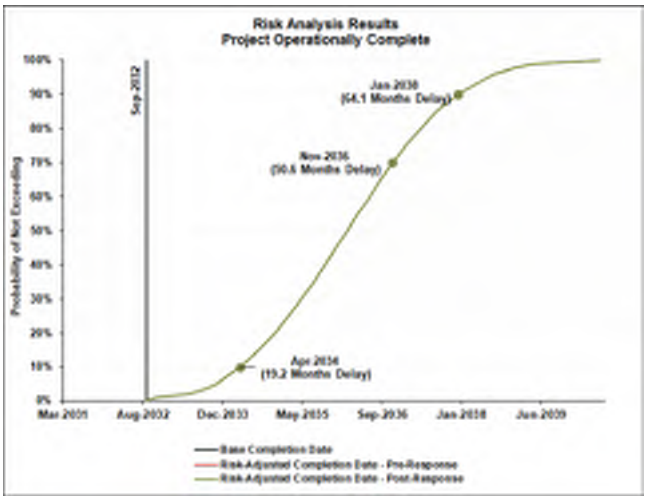


Cost Risks – Alternative 1 (Overall)

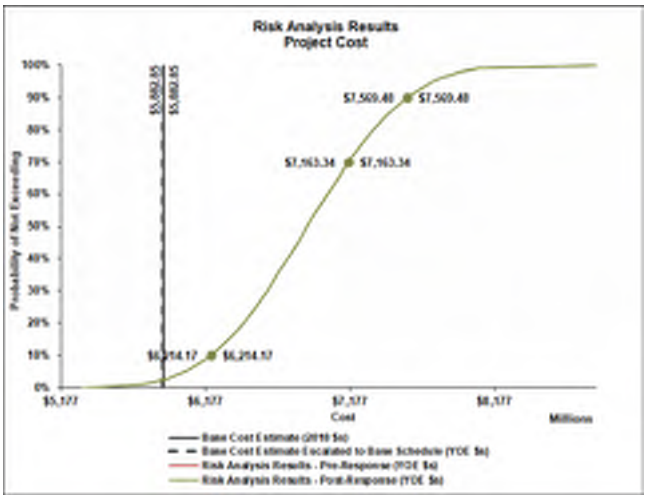


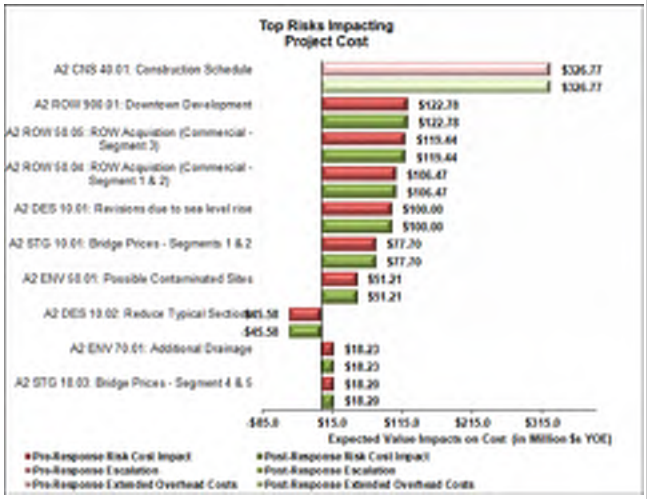


Schedule Risks – Alternative 1 (Overall)

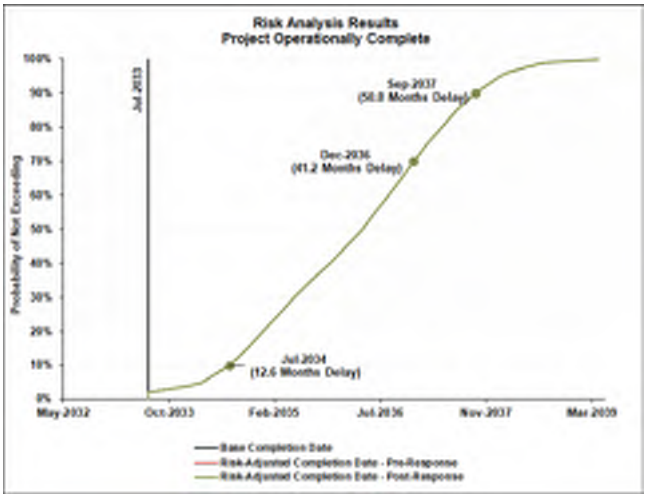


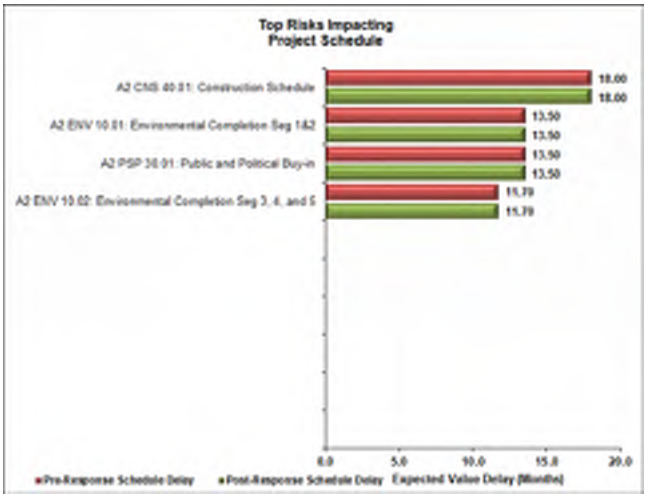
Cost Risks – Alternative 2 (Overall)





Schedule Risks – Alternative 2 (Overall)





Other Risk Assessment Results

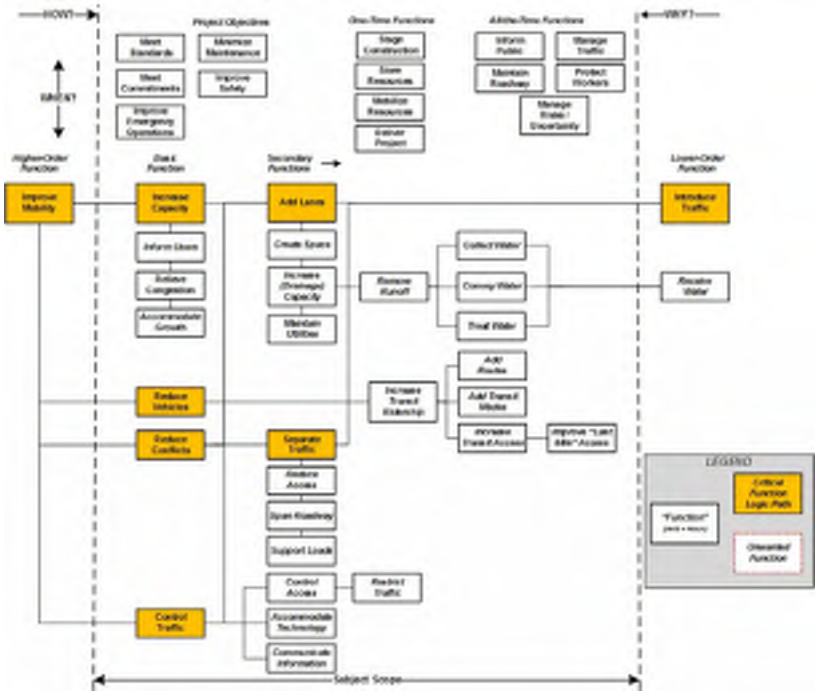
- Overall Corridor
  - Construction
  - Right of Way
- PD&E Segments 1, 2 & 3
  - Overall
  - Construction
  - Right of Way
- Value Engineering Response Strategies

Risk Response Strategies

Threats Risk Factors that Increase Cost or Schedule	Opportunities Risk Factors that Reduce Cost or Schedule
Avoid: Change the project scope to eliminate the impact of a risk.	Exploit: To make a proactive decision to take action to show that an opportunity is realized.
Transfer: Move a risk to another party who is more capable at handling the risk (such as the developer or insurance company).	Share: Assigning ownership of the opportunity to a third-party who is best able to capture the benefit for the project.
Mitigate: The project team may seek to lessen the impact of a specific risk item, which may involve the consumption of additional time and/or money. Mitigation usually requires positive action and has a cost.	Enhance: Take action to increase the probability and/or impact of the opportunity for the benefit of the project; seeking to facilitate or strengthen the cause of the opportunity, and proactively targeting and reinforcing its trigger conditions.
Accept: To take no action when a response may be too costly to be effective or when the risks are uncontrollable and no practical action may be taken to specifically address it. In active acceptance, the project team sets up a contingency reserve fund to account for the residual expected value of the remaining risks.	

Function Analysis

The VE team identified and defined relevant project functions using a **two-word active verb / measurable noun** context.



Objectives of the Study

Through application of the VE job plan, the objective of the VE study was to **validate or improve** on the various concepts of the project.

$$Value = \frac{Performance}{Cost}$$

Evaluation Process – Tier 1

#	Description	Advantages	Disadvantages
27	Move merging point of NB on-ramp at Boynton Beach to reduce lane length on I-95 and reduce/eliminate new lane on I-95	▪ May avoid impacts to ITS trunk line ▪ Reduce wall length ▪ Less impervious ▪ Minimizes throw-away construction if Express lanes are added ▪ May be used (ramp-metering) as test-bed for implementation in other interchanges	▪ May require ramp metering ▪ Queues traffic on ramp

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts	Project Schedule
👍	👎			👍	

Rating:	Justification/Comments/Disposition:
3	*May require ramp metering*

0-Unacceptable Impact / Fatal Flaw
1-Poor Opportunity
2-Good idea for design team to pursue
3-Good Opportunity

Implement a Robust TSM&O Strategy

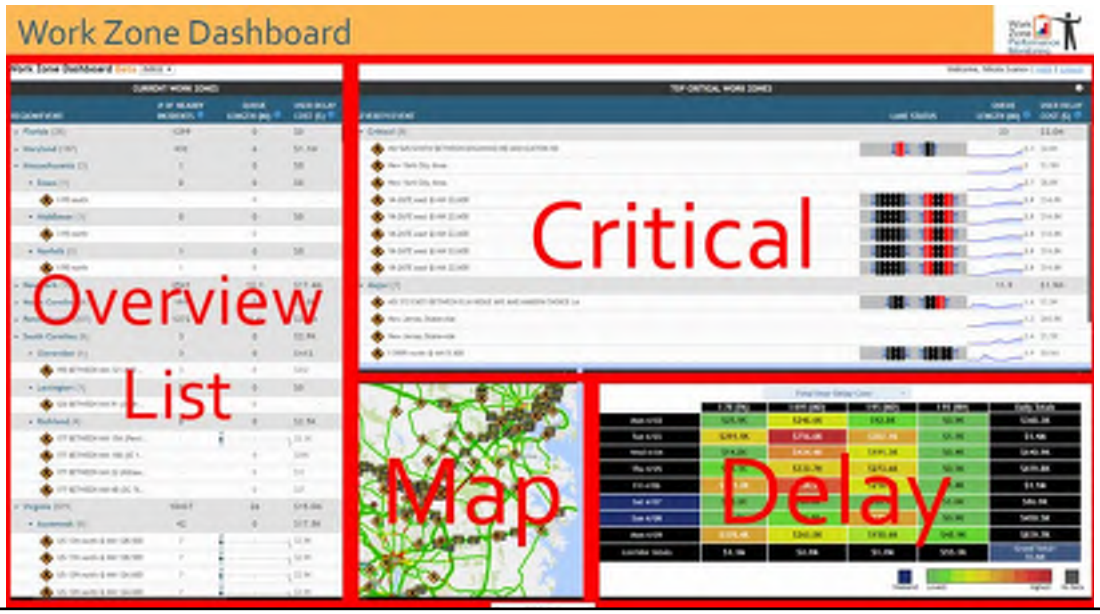
Implement a Robust TSM&O Strategy

Signal Performance Metrics

Implement a Robust TSM&O Strategy

Connected Vehicles (CV)

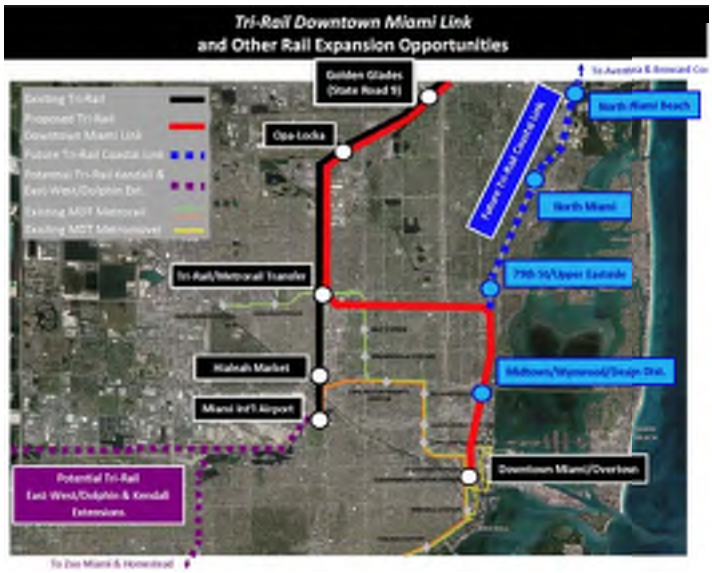
Implement a Robust TSM&O Strategy



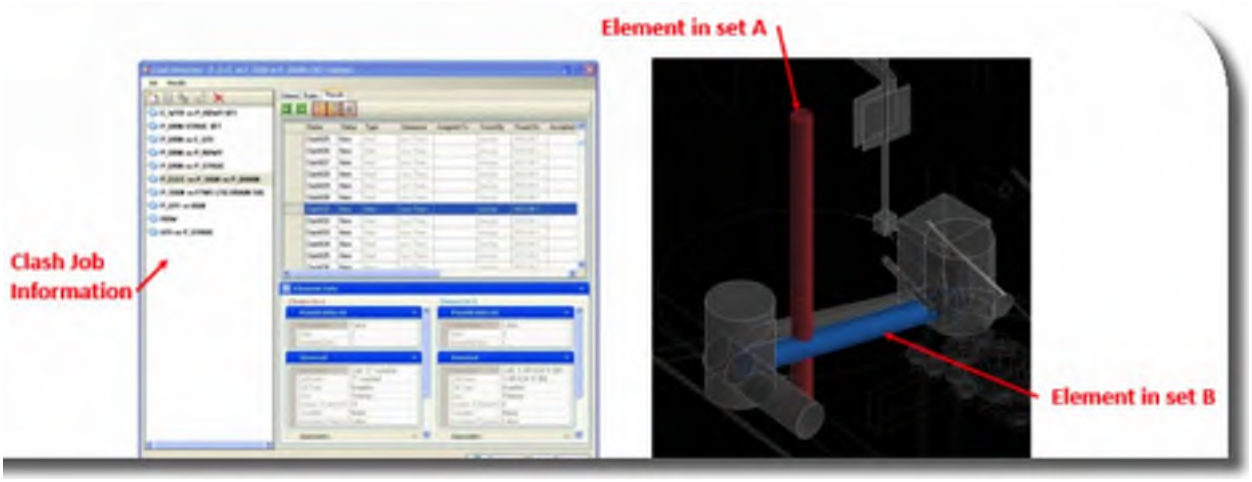
Extraordinary Public Awareness Campaign

Coordinate GGI Design

Improve Transit Commuter Rail Service



Use 4D Renderings to Assist Constructability



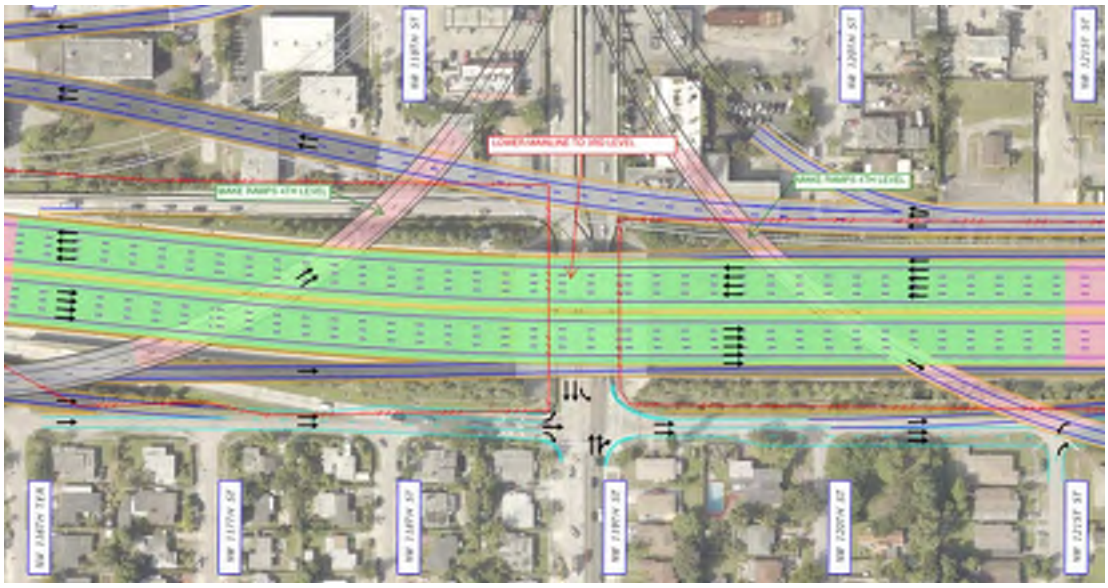
Use 4D Renderings to Assist Constructability

Figure 2. Elements of the 4D simulation.
1. Construction schedule — A virtual timeline runs through the schedule, and the 3D environment gets updated based on construction sequencing.

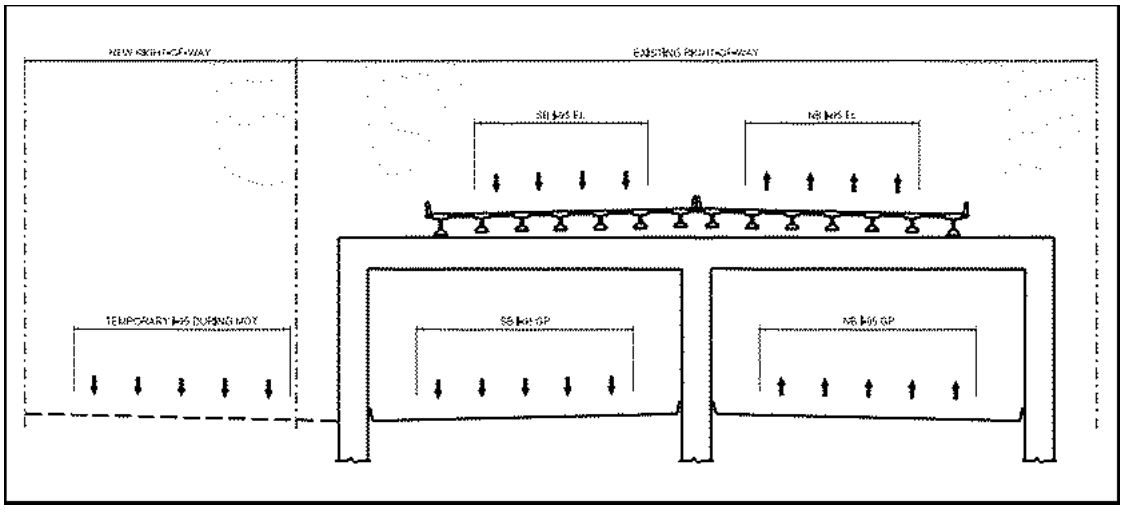
2. Terminal construction in progress — Construction staging (yellow) and plane routes (green) are updated as construction progresses.

3. Terminal finished — New plane routes open (blue) as construction (green area) and construction staging (yellow) move to a different terminal.

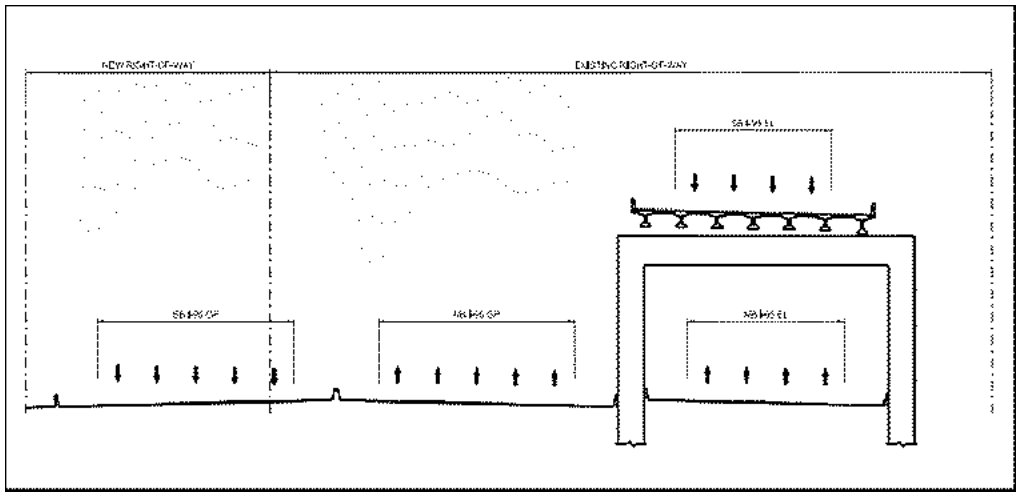
Maintain Mainline 3rd Level Bridge at Gratigny



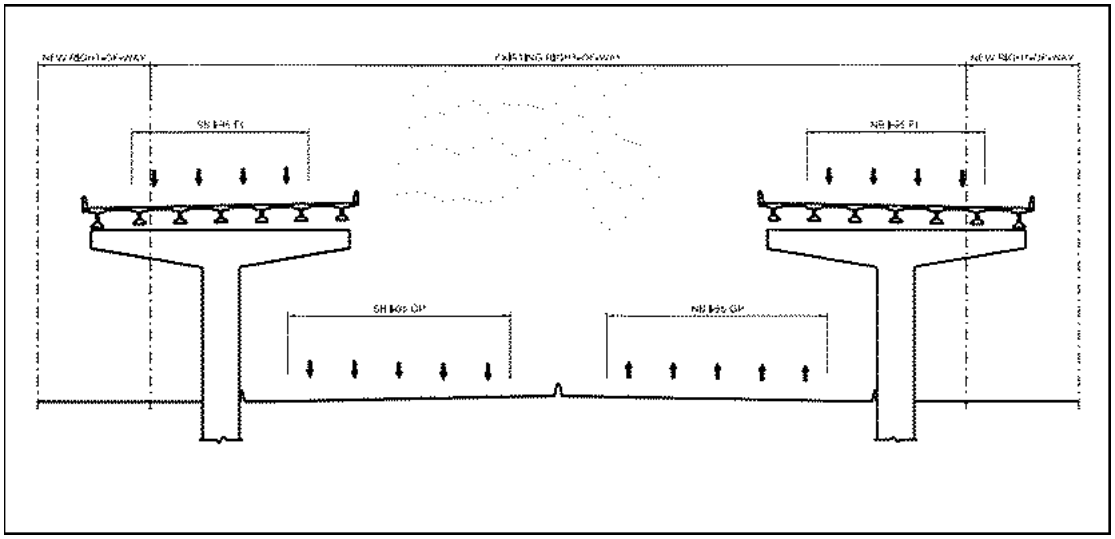
Constructability Options For Express Lanes



Constructability Options For Express Lanes



Constructability Options For Express Lanes



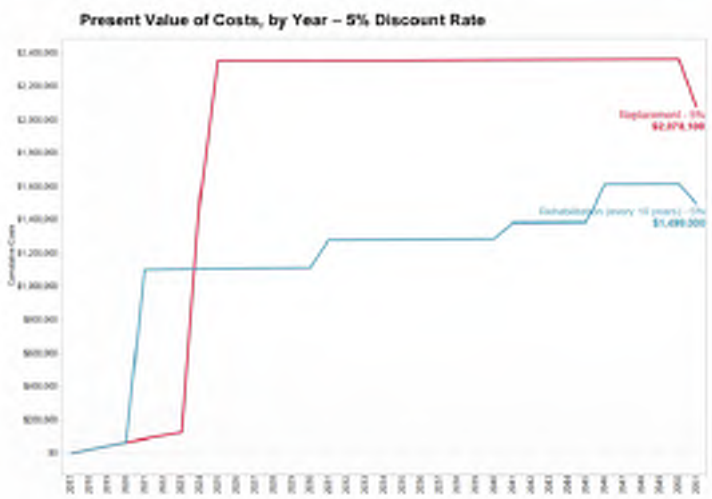
Public Private Partnership Delivery Method

Bridge Life Cycle Cost Analysis

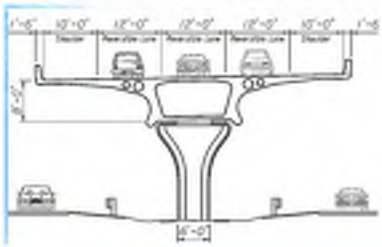
TYPICAL MAINLINE BRIDGE WIDTH

Bridge Life Cycle Cost Analysis

Category	Replacement - 5%	Rehabilitation (every 18 years) - 5%
Total Life Cycle Cost	$2,078,100	$1,499,000



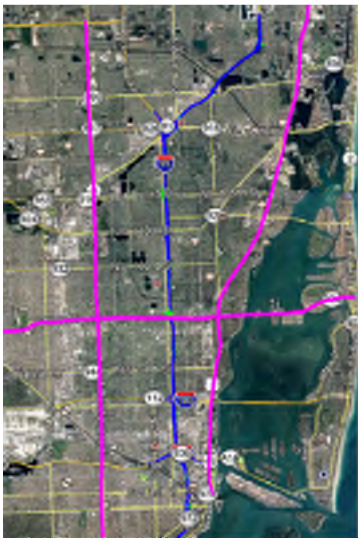
Use ABC Construction Strategies



Use ABC Construction Strategies

Improve Local Network Operations

One-way pairs for local downtown network: eastbound and southbound (red), westbound and northbound (blue), two-way traffic (green).



NW 27th Avenue, Biscayne Boulevard, and NW 79th Street

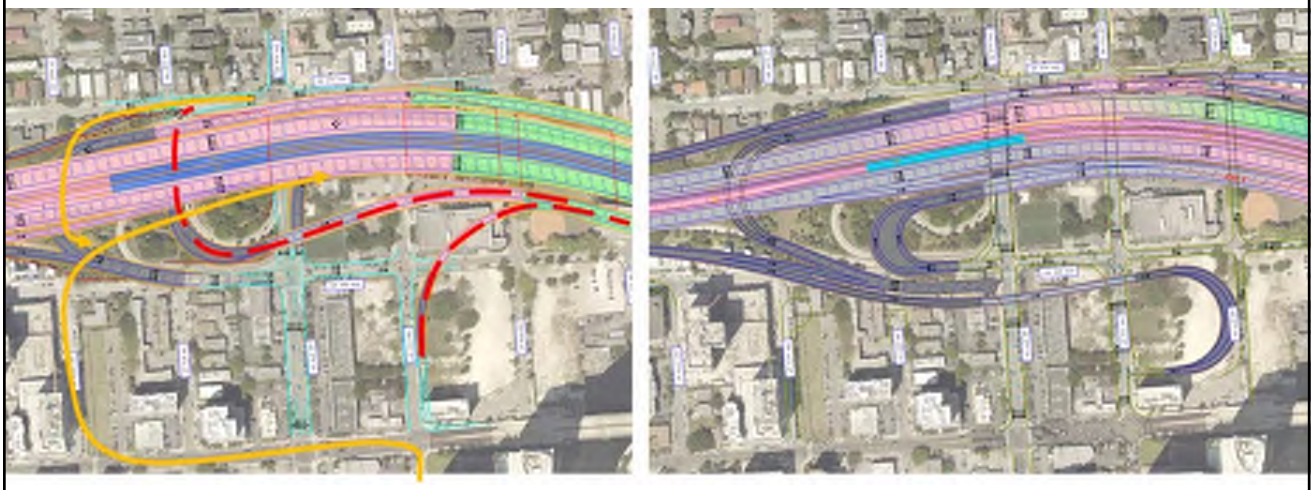
Separate Connection Between I-395/SR 836 and Downtown

Eliminate Local Connections NB

Eliminate Local Connections NB

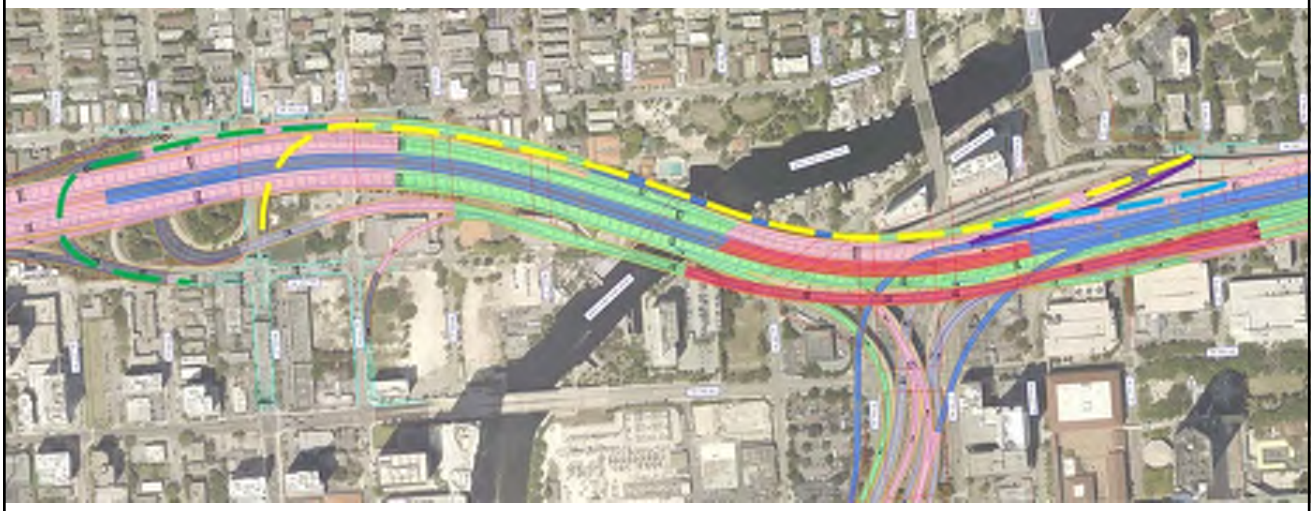
Eliminate Local Connections NB

Eliminate Local Connections NB

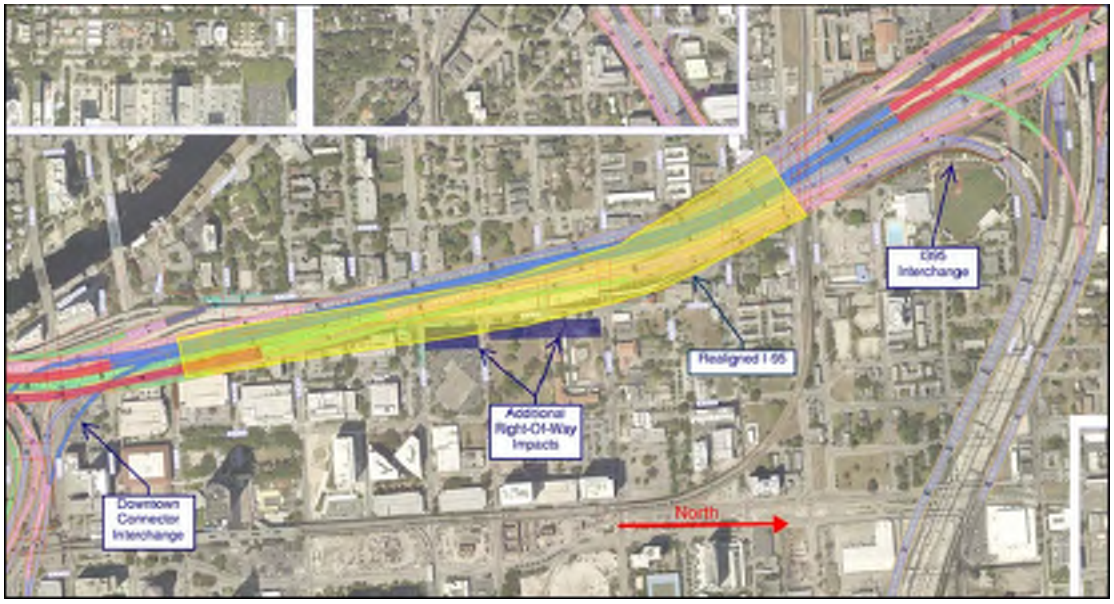


Eliminate Local Connections SB

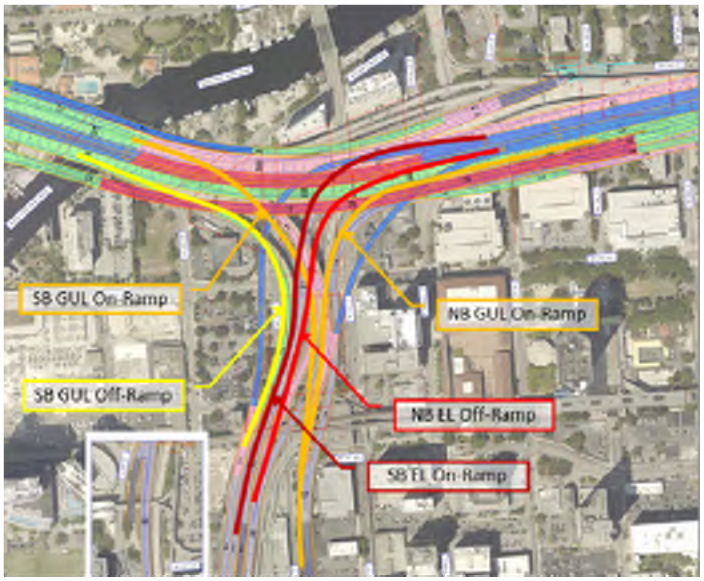
Eliminate Local Connections SB



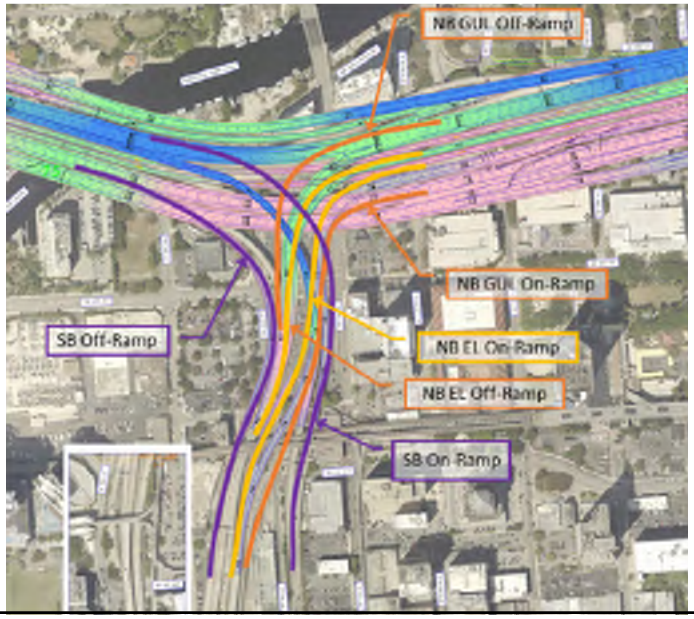
Realign I-95 on Segment 1



Separate Downtown Connector Connections



Separate Downtown Connector Connections



Separate Downtown Connector Connections

Design Considerations

Idea #	Idea Description
4	Use Waze and Google/Apple maps to strategize more efficient travel time (reverse toll)
8	Optimize footprint by maximizing use of exceptions and variations
10	Reduce number of lanes required to maintain traffic
11	Reduce shoulder width to a minimum during construction (provide emergency pull-outs)
12	Early identification of staging areas
14	Dedicate a construction corridor to the contractor
15	Use reversible lanes during construction
16	Identify detours to divert traffic with specific origin and destination

Design Considerations

Idea #	Idea Description
43	Reconsider (validate) reversible lanes
44	Create a super express lane (downtown to Broward)
45	Create a reversible super express lane
55	Restrict bridge openings
56	Coordinate with Port Authority to manage ship activity during the night
74	Need to consider overhead signs with Alternative 1
76	Include tube settlers (inlet insert)

Evaluation Process – Tier 2

Value engineering has traditionally been perceived as an effective means for reducing project costs.

This paradigm only addresses one part of the value equation, oftentimes at the expense of overlooking the role that VE can play with regard to improving project performance.

Performance-based VE

$$Value = \frac{Performance}{Cost}$$

Performance Attributes

Evaluative Criteria		
Performance Attribute	**Description**	**Baseline**
Main Line Operations	An assessment of traffic operations and safety on the main line within the project limits. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	Alternative 1: Design speed 65 mph; posted speed 55 mph; 12-foot lanes (GP and Express); 12-foot inside and outside shoulders (GP and Express); express lanes are elevated; transit is not included in the baseline Alternative 2: Design speed 65 mph; posted speed 55 mph; 12-foot lanes (GP and Express); 12-foot inside and outside shoulders (GP and Express); express lanes at same level; transit is not included in the baseline
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Local Operations include frontage roads as well as cross roads. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations and access.	Alternative 1: Segment 5 has existing tight diamond at Ives Dairy Rd; Segment 2 provides a new interchange at NW 29th Street; transit is not included in the baseline Alternative 2: Segment 5 proposes a DDI at Ives Dairy Road; transit is not included in the baseline
Maintainability	An assessment of the long-term maintainability of the facilities and equipment. Maintenance considerations include the overall durability, longevity, and maintainability of structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	Alternative 1: All express lanes are elevated in the middle of the road and maximum height is increased; requires twice as much square footage for retaining walls; stormwater inlets on structures and two enclosed stormwater systems Alternative 2: All express lanes are at the same level; requires four separate enclosed stormwater systems

Performance Attributes

Evaluative Criteria		
Performance Attribute	**Description**	**Baseline**
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to existing utilities; impacts to businesses and residents relative to access, visual effects, noise, vibration, dust, and construction traffic; environmental impacts.	Alternative 1: Maintain four GP lanes in both directions during peak hours; drilled shafts or driven piles Alternative 2: Maintain four GP lanes in both directions during peak hours; drilled shafts or driven piles
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts; impacts to shore edge; impacts to cultural, recreational and historic resources.	See spreadsheet from PowerPoint presentation
Project Schedule	An assessment of the total project delivery from the time as measured from the time of the VE Study to completion of construction.	Seven years
Access and Conflicts	Addresses crash patterns, emergency vehicle access, barrier separation between express lanes/general purpose lanes, congestion, and minimizes left-side access points.	12-foot inside and outside shoulders (GP and Express) Barrier separated express lanes
Constructibility/MOT	Level of complexity, staging, and phasing. Additional right-of-way for MOT; number of lanes. Is the project constuctible?	Roadway reconstruction includes 10% MOT; bridges have a complexity factor added; there is an additional 10% MOT and a 15% contingency.

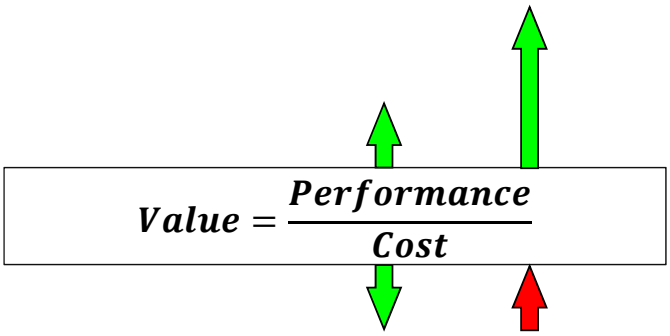
Performance Attributes – Paired Comparison

Performance Attributes Criteria Matrix

Paired Comparison

									Total points	% of Total
Main Line Operations	A	A	A	A	A/E	A	A/G	A	7.0	19.4%
Local Operations		B	B	B/D	E	B	B/G	B	5.0	13.8%
Maintainability			C	C	E	C	G	C	4.0	11.1%
Construction Impacts				D	E	D/F	G	H	2.0	5.5%
Environmental Impacts					E	E	G	E/H	6.0	17.0%
Project Schedule						F	G	H	1.5	4.1%
Access and Conflicts							G	G	7.0	19.4%
Constructibility/MOT								H	3.5	9.7%
								Total	36.0	100.0%

Performance Attributes – Paired Comparison

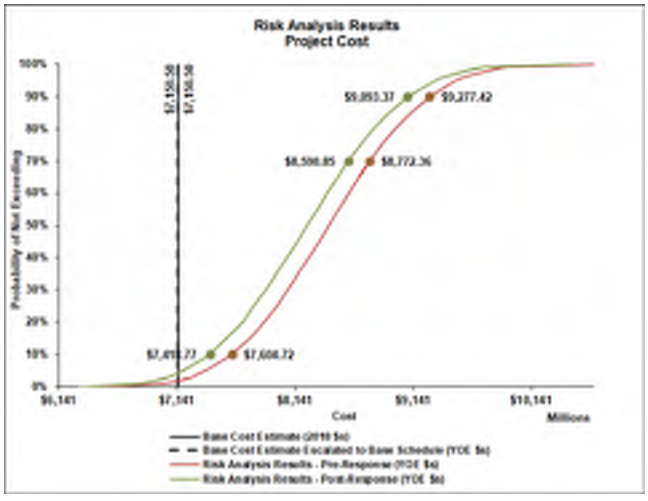


VE RECOMMENDATION NO. 1 *Operational Improvements at Chancey Rd.*	IDEA NO.		
PERFORMANCE MEASURES **Attributes and Rating Rationale for Recommendation**	*Performance*	*Original*	*Alternative*
Main Line Operations	*Rating*	5	7
Reduce conflicts, improved travel time, avoids weaves and merging traffic at Chancey Road	*Weight*	33.5	
	Contribution	167.5	234.5
Local Operations	*Rating*	5	6
Reduce conflicts, improved travel time, avoids weaves and merging traffic at Chancey Road	*Weight*	25.9	
	Contribution	129.5	155.4
Maintainability No significant change	*Rating*	5	5
	Weight	12.9	
	Contribution	64.5	64.5
Construction Impacts No significant change	*Rating*	5	5
	Weight	7.4	
	Contribution	37	37
Environmental Impacts Eliminates bypassing of traffic through community	*Rating*	5	5.5
	Weight	16.6	
	Contribution	83	91.3
Project Schedule No significant change	*Rating*	5	5
	Weight	3.7	
	Contribution	18.5	18.5
	Total Performance	500	601.2
	Net Change in Performance		20%

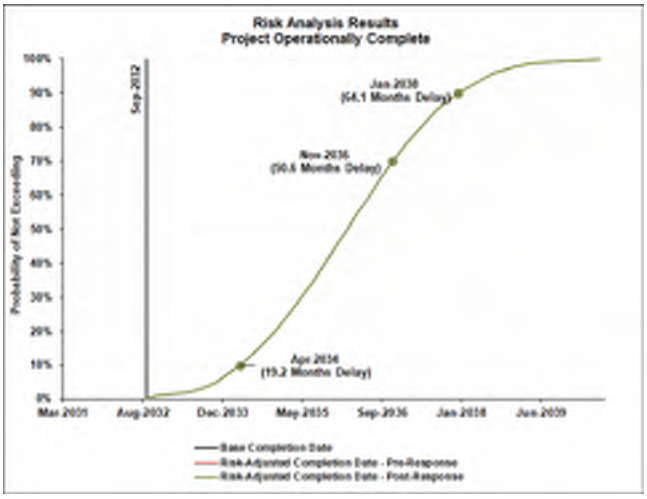
Summary – Value Improvements

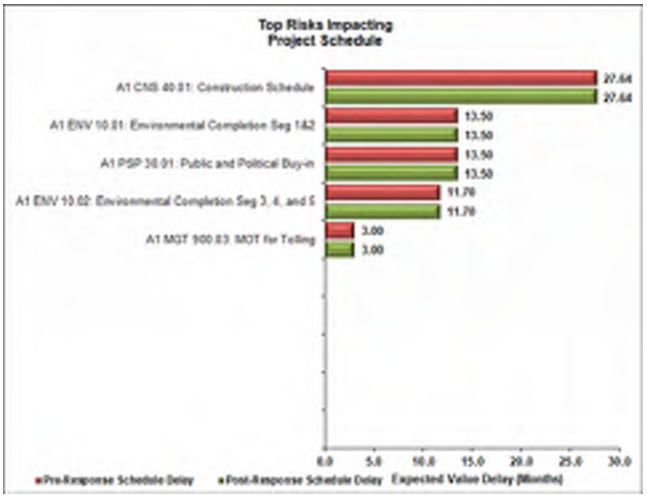
	Recommendations	Performance (P)	% Change Performance	Cost (C) $ millions	Cost Change $ millions	% Change Cost	Value Index	% Value Improvement
	Baseline	500	---	$5,405.0	---	---	0.09	---
1	TSM&O	537	+7.5%	$5,405.0	$0.00	0.0%	0.10	+7.5%
2	Bridge Life Cycle Cost Analysis	532	+6.3%	$4,343.0	($1,062.00)	-19.6%	0.12	+32.3%
3	Coordinate GGI Design	511	+2.2%	$5,302.6	($102.40)	-1.9%	0.10	+4.2%
4	Constructability Options for Elevated Express Lanes	556	+11.3%	$4,368.8	($1,036.25)	-19.2%	0.13	+37.7%
5	Separate Connection between I-395/SR 386 & Downtown	555	+11.1%	$5,405.0	($48.60)	-0.9%	0.10	+11.1%
6	ABC Construction Method	532	+6.3%	$5,338.7	($66.30)	-1.2%	0.10	+7.7%
7	Eliminate Local Connections Northbound	502	+0.5%	$5,280.8	($222.60)	-4.1%	0.10	+2.9%
8	Eliminate Local Connections Southbound	554	+10.8%	$5,387.4	($29.30)	-0.5%	0.10	+11.2%
9	P3 Procurement Process	554	+10.8%	$5,405.0	$0.0	0.0%	0.10	+10.8%
10	4D Rendering	512	+2.4%	$5,405.1	$0.1	+0.0%	0.09	+2.3%
11	Maintain Third Level at Gratigny	513	+2.6%	$5,402.3	($2.7)	-0.0%	0.09	+2.7%
12	Realign I-95 in Segment 1	498	-0.3%	$5,382.2	($22.8)	-0.4%	0.09	+0.1%
13	Public Outreach	539	+7.8%	$5,413.0	$8.0	+0.1%	0.10	+7.6%
14	Separate Downtown Distributor Connections	561	+12.2%	$5,390.1	($14.9)	-0.3%	0.10	+12.5%
15	Improve Local Roadways	508	+1.6%	$5,408.5	$3.5	+0.1%	0.09	+1.5%
16	Transit - Tri-Rail	539	+7.8%	$5,446.2	$41.2	+0.8%	0.10	+6.9%
				Total	($2,578.8)			

Cost Risks – Alternative 1 (Overall)

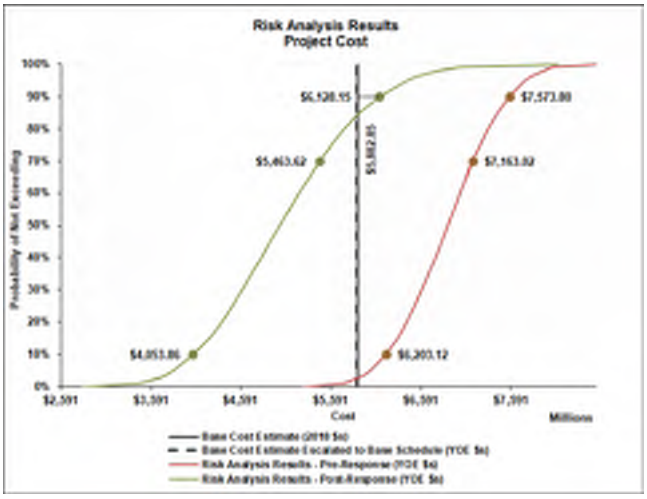


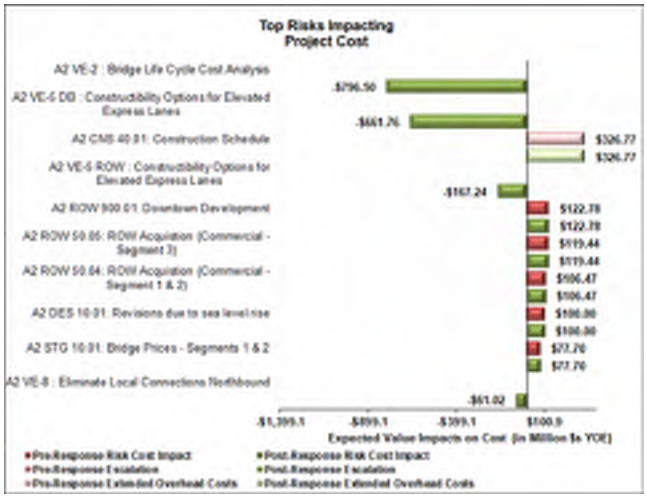
Schedule Risks – Alternative 1 (Overall)



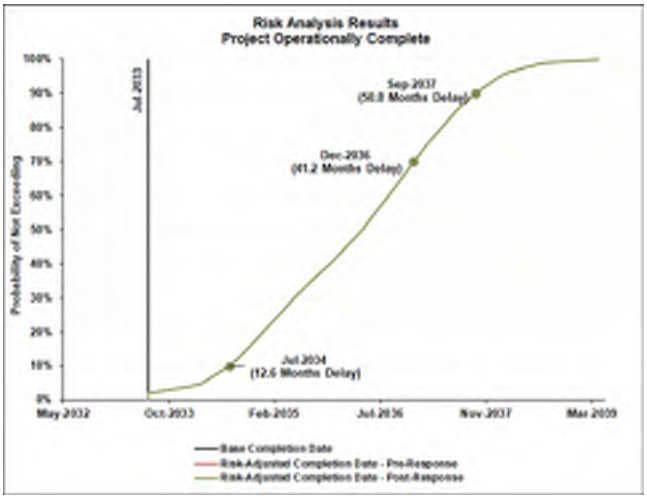


Cost Risks – Alternative 2 (Overall)





Schedule Risks – Alternative 2 (Overall)



QUESTIONS

Jose Theiler, PE, CVS

Appendix P

EXISTING GORE TO GORE SPACING DEFICIENCIES

NORTHBOUND		
Segment 1	Gore Spacing	Meet Std
I-95 to SW 8th St		
(on-off weaving)	1987	Y
SW 8th St		
(off-on) LA	1236	Y
SW 8th St and I-95 (LT Side)		
(on-on) LA	867	N
SW 8th St to SW 7th Street		
(On-On) LA	982 (Normal)	N
	100 (LT)	
I-95 to Downtown Distributor		
(turning roadway) ser.	1300	Y
Downtown Distributor to SE 1st Ave		
(on-off)	2115	Y
Downtown Distributor (SE 1st Ave to SE 2nd Ave)		
(off-on) C-D	400	Y
Downtown Distributor to I-95 NB Ramp		
(turning roadway) ser.	983	Y
I-95 NB Ramp (DT Distributor) to I-95 NB		
(turning roadway)	1575	Y
I-95 NB (DT Distributor to NW 2nd St)		
(off-off) LA	1017	Y
I-95 NB (NW 2nd St to I-95 NB Ramp)		
(off-on)	1059	Y
I-95 NB Ramp to Port of Miami		
(on-off;C) LA	1605	Y
S Miami Ave to NB I-95 Ramp		
(on-on) C-D	1142	Y

SOUTHBOUND		
Segment 1	Gore Spacing	Meet Std
I-95 SB (SW 4th Ave to NW 25th Rd)		
(on-off) LA	2741	Y
I-95 SB/Downtown Distributor to SW 4th Ave Ramp		
(on-on) LA	3256	Y
I-95 SB (NW 2nd St to Downtown Distributor)		
(on-on) LA	1002	Y
I-95 SB (DT Distributor to NW 2nd St)		
(off-on) LA	810	Y
NW 2nd St to I-95 SB		
(turning roadway) sys.	811	Y
NW 2nd St to I-95 SB C-D (SW 7th Ave/SW 8th Ave)		
(turning roadway) serv.	1059	Y
I-95 SB C-D to SW 7th Ave/SW 8th Ave		
(turning roadway) serv.	1317	Y
I-95 SB to I-95 C-D (SW 7th Ave/8th Ave)		
(off-on) C-D	2064	Y
I-95 SB (Near NW 4th St) to Downtown Distributor		
(off-off) LA	1000	N
Downtown Distributor Off to S Miami Ave		
(turning roadway) sys.	1859	Y
Downtown Distributor (S Miami Ave to SE 2nd Ave)		
(off-on) C-D	1040	Y
DTD (from SE 2nd Ave and from S Miami Ave) to I-95 SB C-D		
(on-on) C-D	1029	Y
DTD I-95 SB C-D to I-95 SB		
(turning roadway) sys.	1093	Y
S Miami Ave to I-95 SB C-D		
(on-on) C-D	1221	Y

Segment 2	Gore Spacing	Meet Std
I-95 NB (braided ramp) to I-95 NB (from I-395)		
(off-on) LA	1694	Y
from I-395 WB to I-95 NB (braided ramp from I-395)		
(on-off) C-D	879	Y
I-95 NB (braided ramp from I-395) to I-95 NB (from I-395)		
(off-on) C-D	287	Y
I-95 NB (braided ramp from I-395) to I-95 NB (braided ramp)		
(turning roadway) serv.	1448	Y
I-95 NB (braided ramp exit NW 26th St) to I-95 C-D (near NW 29th St)		
(off-on) C-D	1285	Y
I-95 NB (near NW 27th St) to I-95 C-D (near NW 29th St)		
(off-on) C-D	595	Y
I-95 C-D (near NW 29th St) to SR 112 exit near NW 33rd St		
(on-off) C-D	1385	Y
SR 112 exit near NW 33rd St to SR 112 WB/EB exit		
(turning roadway) sys.	891	Y
SR 112 WB exit to SR 112 WB (from I-95 SB)		
(off-on) LA	1861	Y
SR 112 WB (from I-95 SB) to SR 112 WB		
(on-on) LA	1318	Y
SR 112 EB (near NW 11th Ave to I-95 NB/SB near NW 10th Ave)		
(off-off) LA	916	N
I-95 NB/SB near NW 10th Ave to I-95 NB/SB ramps		
(off-off) LA	823	N
I-95 NB ramp to I-95 NB on ramp near NW 44th St		
(off-on) LA	1818	Y
I-95 NB/SB near NW 10th to I-95 EXPY (from NW 39th St to I-95 NB)		
(off-on) LA	1458	Y
I-95 EXPY (from NW 39th St to I-95 NB) to I-95 NB EXPY (near NW 43RD St)		
(on-on) LA	1438	Y
SR 112 EB exit to SR 112 EB (near NW 3rd Ave)		
(off-on) LA	1665	Y
SR 112 EB (near NW 3rd Ave) to SR 112 EB (near NW 1st Ave)		
(on-on) LA	1586	Y
SR 112 exit near NW 33rd St to SR 112 EB (between NW 2nd and NW 1st Ave)		
(off-on) LA	3326	Y
SR 112 EB (between NW 2nd and NW 1st Ave) to N Miami Ave		
(on-off) LA	113	N
SR 112 WB (between NW 2nd and 3rd Ave) to I-95 (NB/SB ramps between NW 3rd and 5th Ave)		
(off-off) C-D	810	Y
I-95 (NB/SB ramps) to I-95 NB and I-95 NB EXPY		
(turning roadway) sys.	816	Y
I-95 NB and I-95 NB EXPY (from SR 112 WB) to I-95 NB EXPY		
(on-on) LA	960	N
I-95 NB and I-95 NB EXPY to I-95 NB on ramp (from SR 112 near NW 43rd St)		
(off-on) LA	1069	Y
I-95 NB on ramp (from SR 112 near NW 43rd St) to I-95 NB (near NW 47th Ter)		
(turning roadway) sys.	1113	Y
I-95 NB (from I-395 near NW 20th St) to I-95 NB (between NW 27th and 28th St)		
(on-off) LA	2949	Y
I-95 NB (between NW 27th and 28th St) to I-95 NB EXPY		
(off-off) LA	660	N
I-95 NB (from NW 29th St to from SR 112 near NW 47th Ter)		
(on-on) LA	3138	Y

Segment 2	Gore Spacing	Meet Std
I-95 SB (near NW 45th St to SR 112 WB/EB exits)		
(turning roadway) sys.	404	N
SR 112 WB (near NW 43rd St) to SR 112 (from I-95 NB)		
(off-on) LA	1212	Y
I-95 NB/SB ramps (from SR 112 EB) to I-95 SB on ramp (near NW 34th St)		
(off-on) LA	2196	Y
SR 112 EB (near NW 43rd St) to NW 32nd ST exit ramp		
(turning roadway) serv.	755	Y
SR 112 EB (NW 32nd St exit ramp) to SR 112 EB (from I-95 SB EXPY)		
(off-on) LA	716	Y
SR 112 EB (from I-95 SB EXPY) to SR 112 EB (between NW 5th and 3rd Ave)		
(off-on) LA	768	Y
SR 112 EB (between NW 5th and 3rd Ave) to SR 112 EB (between NW 2nd and 1st Ave)		
(on-on) LA	1327	Y
I-95 (NB/SB ramps between NW 3rd and 5th Ave) to I-95 SB on ramp (near NW 34th St)		
(off-on) C-D	2288	Y
I-95 SB on ramp (near NW 34th St) to I-95 SB (near NW 31st St)		
(turning roadway) sys.	1011	Y
I-95 SB (near NW 45th St) to I-95 SB (near NW 31st St)		
(off-on) LA	4122	Y
I-95 SB (near NW 31st St) to I-95 SB EXPY (near NW 31st St)		
(on-on) LA	77	N
I-95 SB EXPY (near NW 31st St) to I-95 SB (near NW 27th St)		
(on-on) LA	1296	Y

Segment 3	Gore Spacing	Meet Std
i-95 exit NW 62nd ST		
(off-on)	3298	Y
NW 62nd St to NW 79th Ave		
(on-off weaving)	2169	Y
NW 81st St to NW 95th St		
(on-off weaving)	2540	Y
NW 103rd St to NW 119 St		
	1525	Y
NW 119th St to i-95		
(on-on)	1220	Y
i-95 exit NW 135th St		
(on-off) C-D	2043	Y
NW 135th St to NW 151st St		
(on-off)	2545	Y

Segment 3	Gore Spacing	Meet Std
NW 6th Ave and NW 62nd St		
(on-on) C-D	1001	Y
i-95 exit NW 62nd St and NW 6th Ave		
(off-on) LA	2089	Y
NW 79th Ave to NW 62nd St		
(on-off weaving)	2523	Y
NW 83rd St to NW 79th Ave		
(off-on) LA	2717	Y
NW 95th St to NW 83rd St		
(on-off weaving)	2682	Y
NW 95th St		
(off-on) LA	3405	Y
NW 119th St to NW 95th St		
(on-on) C-D	3601	Y
NW 125th St to NW 119th St		
(on-on) C-D	2849	Y
I-95 to NW 125th St		
(off-on) LA	2275	Y
OPA LOCKA to I-95		
(off-off) LA	989	Y
NW 115th St to OPA LOCKA		
(on-off) weaving	2072	Y

Segment 4	Gore Spacing	Meet Std
I-95 to SR 826		
(turning roadway)	1375	Y
I-95 express to Golden Glades Bus Station		
(turning roadway) ser.	593	N
I-95 express to I-95		
(turning roadway) sys.	690	N
I-95 express to Palmetto EXPY		
(turning roadway) sys.	1770	Y

Segment 4	Gore Spacing	Meet Std
Palmetto EXPY to I-95 express		
(turning roadway) sys.	2169	Y

Segment 5	Gore Spacing	Meet Std
I-95 and Miami Gardens Dr		
(off-on) LA	2393	Y
I-95 and Ives Dairy Rd		
(off-on) LA	4338	Y

Segment 5	Gore Spacing	Meet Std
I-95 and Miami Gardens Dr		
(off-on) LA	1685	Y
I-95 and Ives Dairy Rd		
(off-on) LA	3303	Y

Appendix Q

SEGMENT 1 EXISTING ROADWAY DEFICIENCIES

I-95 Corridor Planning Study
Section 1 - SR 5/US 1/Dixie Highway to South of I-395/ SR 836 Interchange

Review of Existing I-95 Alignment - List of Deficiencies

Segment A - SR 5/US 1/Dixie Highway to North of SW 1st Ave.

Mainline - from Mile point 0.000 to Mile point 1.000 Posted Speed 45mph

Direction of travel	BMP	EMP	Element	Approximate Location	Mainline Bridge No.	Design Speed (mph)	Horizontal Curve Length (feet)	Meet AASHTO? (Y/N)	Horizontal Curve Radius (feet)	Meet AASHTO? (Y/N)	Superelevation (%)	Meet AASHTO? (Y/N)	SSD (feet)	Meet AASHTO? (Y/N)	Vertical Curve Length (feet)	Meet AASHTO? (Y/N)	Vertical Curve K Value	Meet AASHTO? (Y/N)	Max. Vertical Grade (%)	Meet AASHTO? (Y/N)	Ramp Spacing (feet)	Meet AASHTO? (Y/N)	Source/Comments
Southbound	0.369	0.420	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.420	0.518	Tangent	I-95 Over NW 26th Rd.	870351	55	-	-	-	-	-	-	465	N (<495') Ok for 50mph	600	N (<684') Ok for 50mph	100	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	0.518	0.804	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.804	0.875	Curve 8		-	55	1020.833	Y (>140')	1145.922	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.875	0.975	Curve 8	I-95 Over Metrorail	870354	55	1020.833	Y (>140')	1145.922	Y (>877')	8.3%	Y (<12%)	445	N (<495') Ok for 50mph	550	N (<684') Ok for 50mph	92	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	0.975	0.997	Curve 8		-	55	1020.833	Y (>140')	1145.922	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.997	1.000	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
Northbound	0.000	0.039	Curve 1		-	55	284.987	N (<1650') Transition from US1	2000.02	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.039	0.142	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.142	0.169	Curve 3		870350	55	140.098	Y (>140')	1400.013	Y (>877')	10.0%	Y (<12%)	423	N (<495')	580	N (<798') for 50mph is 588'	83	N (<114') for 50mph is 84	4.00%	Y (=4%)	-	-	AsBuilt_No.251662 SLD2017
	0.169	0.204	Curve 4	I-95 Over US1	870350	55	188.55	Y (>140')	699.98	N (<877') Ok for 50mph		Y (<12%)										-	AsBuilt_No.251662 SLD2017
	0.204	0.210	Curve 5		870350	55	140.112	Y (>140')	1400.276	Y (>877')		Y (<12%)										-	AsBuilt_No.251662 SLD2017
	0.210	0.231	Curve 5		-	55	140.112	Y (>140')	1400.276	Y (>877')		Y (<12%)										-	AsBuilt_No.251662 SLD2017
	0.231	0.290	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.290	0.369	Curve 7		-	55	414.003	N (<1650')	7000.075	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.369	0.420	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.420	0.518	Tangent	I-95 Over NW 26th Rd.	870448	55	-		-	-	-	-	465	N (<495') Ok for 50mph	600	N (<684') Ok for 50mph	100	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	0.518	0.584	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.584		On Ramp 87270167		-	-	-		-		-		-	-	-	-	-	-	-	-	5	N (<1000')	TOPO KHA
	0.604		On Ramp 87270500		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			TOPO KHA
	0.584	0.604	Tangent		-	55	-		-		-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.604	0.804	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.804	0.875	Curve 8		-	55	1020.833	N (<1650')	1145.922	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.875	0.975	Curve 8	I-95 Over Metrorail	870451	55	1020.833	N (<1650')	1145.922	Y (>877')	8.3%	Y (<12%)	445	N (<495') Ok for 50mph	550	N (<684') Ok for 50mph	92	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	0.975	0.997	Curve 8		-	55	1020.833	N (<1650')	1145.922	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	0.997	1.000	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017

Segment B - North of SW 1st Ave. to NW 6 St.

Mainline - from Mile point 1.000 to Mile point 2.520 Posted Speed 55mph

Direction of travel	BMP	EMP	Element	Approximate Location	Bridge No.	Design Speed (mph)	Horizontal Curve Length (feet)	Meet AASHTO? (Y/N)	Horizontal Curve Radius (feet)	Meet AASHTO? (Y/N)	Superelevation (%)	Meet AASHTO? (Y/N)	SSD (feet)	Meet AASHTO? (Y/N)	Vertical Curve Length (feet)	Meet AASHTO? (Y/N)	Vertical Curve K Value	Meet AASHTO? (Y/N)	Max. Vertical Grade (%)	Meet AASHTO? (Y/N)	Ramp Spacing (feet)	Meet AASHTO? (Y/N)	Source/Comments
Southbound	1.000	1.198	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.198	1.278	Tangent	I-95 Over SW 15th St.	870355	55	-	-	-	-	-	-	445	N (<495') Ok for 50mph	550	N (<684') Ok for 50mph	92	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	1.278	1.287	Curve9	I-95 Over SW 15th St.	870355	55	359.678	Y (>140')	2291.834	Y (>877')	4.6%	Y (<12%)	445	N (<495') Ok for 50mph	550	N (<684') Ok for 50mph	92	N (<114') Ok for 50mph	3.00%	Y (<4%)	-	-	AsBuilt_No.251662 SLD2017
	1.287	1.346	Curve9		-	55	359.678	Y (>140')	2291.834	Y (>877')	4.6%	Y (<12%)	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.346	1.364	Curve10		-	55	97.27	N (<140')	2281.755	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.364	1.380	Curve11		-	55	84.738	N (<140')	2281.729	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.380	1.481	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.481	1.547	Curve12	I-95 Over SW 8th St.	-	55	1200.026	N (<1650')	2881.795	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.547	1.706	Curve12		-	55	1200.026	N (<1650')	2881.795	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.706	1.785	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.785	1.825	Curve 5 N-S		-	55	211.15	Y (>140')	1273.24	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.825	1.935	Curve 6 N-S		-	55	581.64	Y (>140')	1145.92	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table

	1.935		SR 970 Mainline WB	I-95 Over SW 3rd St.	870473 870555	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510	N (<2000')	TOPO KHA
	2.045		On Ramp 87270503		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			TOPO KHA
	1.935	2.064	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.064	2.121	Curve 7 N-S		-	55	301.56	N (<1650')	1145.92	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.134		Off Ramp 87270505																					AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.223		Off Ramp 87270171	I-95 Over NW 2nd St.	870474 870479	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.121	2.520	Tangent	I-95 Over NW 6 St.	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.000	1.198	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.198	1.278	Tangent	I-95 Over SW 15th Rd.	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.278	1.287	Curve9		-	55	359.678	N (<1650')	2291.834	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.287	1.346	Curve9		-	55	359.678	N (<1650')	2291.834	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.346	1.468	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251662 SLD2017
	1.468		On Ramp 87270501		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	865	N (<1000')	TOPO KHA
	1.625		On Ramp 87270170	I-95 Over SW 8th St.	870471	-	-		-		-	-	-	-	-	-	-	-	-	-	-			TOPO KHA
	1.468	1.625	Tangent	I-95 Over SW 8th St.	870453	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.625	1.712	Curve 1 S-N		-	55	458.33	Y (>140')	1637.02	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
Northbound	1.712	1.833	Curve 2 S-N		-	55	638.63	Y (>140')	2849.71	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.833	1.976	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.976	2.026	Curve 3 S-N		-	55	265.92	Y (>140')	1041.74	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.026	2.166	Curve 4 S-N		-	55	738.22	Y (>140')	1432.39	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.952		SR 970 Mainline EB	I-95 Over SW 3rd St.	870472	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	805	N (<1000')	TOPO KHA
	2.107		Off Ramp 87270504		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			TOPO KHA
	2.166	2.235	Tangent		-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.235	2.322	Curve 5 S-N		-	55	458.87	N (<1650')	1273.24	Y (>877')	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.244		On Ramp 87270506	Over NW 2nd St.	870475	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.322	2.520	Tangent	Over NW 6 St.	-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table

I-95 Corridor Planning Study
Section 1 - SR 5/US 1/Dixie Highway to South of I-395/ SR 836 Interchange

Review of Existing Cross Section Elements along I-95 - List of Deficiencies

Segment A - SR 5/US 1/Dixie Highway to North of SW 1st Ave.

Mainline - from Mile point 0.000 to Mile point 1.000 Posted Speed 45mph

Direction of travel	BMP	EMP	Element	Approximate Location	Bridge No.	Design Speed (mph)	Lane Width (feet)	Meet AASHTO? (Y/N)	Inside Shoulder Width (feet)	Meet AASHTO? (Y/N)	Shoulder Width (feet)	Meet AASHTO? (Y/N)	Lane Cross Slope	Meet AASHTO? (Y/N)	Outside Shoulder Cross Slope	Meet AASHTO? (Y/N)	Inside Shoulder Cross Slope	Meet AASHTO? (Y/N)	Concrete Barrier	Meet FDM? (Y/N)	Traffic Railing	Meet SDG? (Y/N)	Guardrail	Meet FDM? (Y/N)	Vertical Clearance (feet)	Meet AASHTO? (Y/N)	Source/Comments
Southbound	0.231	0.420	Tangent			55	12	Y (=12')	6.401	Y (>4')	8.501	N (<10')	0.02	Y (>0.015,<0.025)	0.06	Y (=0.060)	0.02	Y (=0.020)	Retaining Section	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.420	0.518	Tangent	I-95 Over NW 26th Rd.	870351	55	12	Y (=12')	6.401	Y (>4')	9.843	N (<10')	0.016	Y (>0.015,<0.025)	0.016	N (<0.020)	0.016	N (<0.020)			32" F Shape	Y			14.88	Y >14'	Bridge No. 870351 AsBuilt_No.251662
	0.518	0.804	Tangent			55	12	Y (=12')	9.078	N (<10')	8.501	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.628		Off Ramp 87270166	to SW 25th Rd.		-	-	-	-	-	-	-	-	Y (>0.015,<0.030)	-	-	-	-									SLD2017
	0.804	0.875	Curve 8			55	12	Y (=12')	9.078	N (<10')	8.501	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.875	0.975	Curve 8	I-95 Over Metrorail	870354	55	11.8	N (<12')	7.001	N (<10')	9.843	N (<10')	0.083	Y (>0.015,<0.030)	0.083	Y (>0.020,<0.060)	0.083	Y (>0.020,<0.060)			32" F Shape	Y			22.50	N (<24.25')	Bridge No. 870354 AsBuilt_No.251662
	0.975	0.997	Curve 8			55	12	Y (=12')	7.001	N (<10')	9.843	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.997	1.000	Tangent			55	12	Y (=12')	7.001	N (<10')	9.843	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
Northbound	0.120	0.142	Tangent	I-95 Over US1	870350	55	12	Y (=12')	6.755	Y (>4')	9.843	N (<10')	0.016 to 0.100	Y (>0.015,<0.025)	0.016 to 0.100	N (<0.020)	0.016 to 0.100	N (<0.020)			32" F Shape	Y					Bridge No. 870350 AsBuilt_No.251662
	0.142	0.169	Curve 3	I-95 Over US1	870350	55	12	Y (=12')	6.755	Y (>4')	9.843	N (<10')	0.016 to 0.100	Y (>0.015,<0.025)	0.016 to 0.100	N (<0.020)	0.016 to 0.100	N (<0.020)			32" F Shape	Y					Bridge No. 870350 AsBuilt_No.251662
	0.169	0.204	Curve 4	I-95 Over US1	870350	55	12	Y (=12')	6.755	Y (>4')	9.843	N (<10')	0.016 to 0.100	Y (>0.015,<0.025)	0.016 to 0.100	N (<0.020)	0.016 to 0.100	N (<0.020)			32" F Shape	Y			14.18	Y >14'	Bridge No. 870350 AsBuilt_No.251662
	0.204	0.231	Curve 5	I-95 Over US1	870350	55	12	Y (=12')	6.755	Y (>4')	9.843	N (<10')	0.02	Y (>0.015,<0.025)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.231	0.290	Tangent			55	12	Y (=12')	6.401	Y (>4')	8.501	N (<10')	0.02	Y (>0.015,<0.025)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.290	0.369	Curve 7			55	12	Y (=12')	6.401	Y (>4')	8.501	N (<10')	0.02	Y (>0.015,<0.025)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.369	0.420	Tangent			55	12	Y (=12')	6.401	Y (>4')	8.501	N (<10')	0.02	Y (>0.015,<0.025)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.420	0.518	Tangent	I-95 Over NW 26th Rd.	870448	55	12	Y (=12')	6.401	Y (>4')	9.843	N (<10')	0.016	Y (>0.015,<0.025)	0.016	N (<0.020)	0.016	N (<0.020)			32" F Shape	Y			14.88	Y >14'	Bridge No. 870448 AsBuilt_No.251662
	0.584		On Ramp 87270167	From Rbacker Cswy.	870162	-	-	-	4	Y (>2')	4	N (<8')	-	-	-	-	-	-			-		-		15.3	Y >14'	Ex. Bridge & Overpass Characteristics
	0.604		On Ramp 87270500	From SW 25th Rd.		-	-	-	-	-	-	-	-	-	-	-	-	-			-		-		-		SLD2017
	0.518	0.804	Tangent			55	12	Y (=12')	9.078	N (<10')	8.501	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.804	0.875	Curve 8			55	12	Y (=12')	9.078	N (<10')	8.501	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.875	0.975	Curve 8	I-95 Over Metrorail	870451	55	11.8	N (<12')	7.001	N (<10')	9.843	N (<10')	0.083	Y (>0.015,<0.030)	0.083	Y (>0.020,<0.060)	0.083	Y (>0.020,<0.060)			32" F Shape	Y			22.50	N (<24.25')	Bridge No. 870451 AsBuilt_No.251662
	0.975	0.997	Curve 8			55	12	Y (=12')	7.001	N (<10')	9.843	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017
	0.997	1.000	Tangent			55	12	Y (=12')	7.001	N (<10')	9.843	N (<10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')			AsBuilt_No.251662 SLD2017

Segment B - North of SW 1st Ave. to NW 6 St.

Mainline - from Mile point 1.000 to Mile point 2.520 Posted Speed 55mph

Direction of travel	BMP	EMP	Element	Approximate Location	Bridge No.	Design Speed (mph)	Lane Width (feet)	Meet AASHTO? (Y/N)	Inside Shoulder Width (feet)	Meet AASHTO? (Y/N)	Shoulder Width (feet)	Meet AASHTO? (Y/N)	Lane Cross Slope	Meet AASHTO? (Y/N)	Outside Shoulder Cross Slope	Meet AASHTO? (Y/N)	Inside Shoulder Cross Slope	Meet AASHTO? (Y/N)	Concrete Barrier	Meet FDM? (Y/N)	Traffic Railing	Meet FDM? (Y/N)	Guardrail	Meet FDM? (Y/N)	Vertical Clearance (feet)	Meet AASHTO? (Y/N)	Source/Comments
Southbound	1.000	1.198	Tangent			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.198	1.278	Tangent	I-95 Over SW 15th St.	870355	55	12	Y (=12')	8.484	N (<10')	5.906	N (<10')	0.016	Y (>0.015,<0.030)	0.016	N (<0.020)	0.016	N (<0.020)			32" F Shape	Y					Bridge No. 870355 AsBuilt_No.251662
	1.278	1.287	Curve9	I-95 Over SW 15th St.	870355	55	12	Y (=12')	8.484	N (<10')	5.906	N (<10')	0.016	Y (>0.015,<0.030)	0.016	N (<0.020)	0.016	N (<0.020)		Y	32" F Shape	Y			14.245	Y >14'	Bridge No. 870355 AsBuilt_No.251662
	1.287	1.346	Curve9			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.346	1.364	Curve10			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall)	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.364	1.380	Curve11			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall)	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.425		On Ramp 87270168			-	-	-	-		-		-	Y (>0.015,<0.030)	-	-	-	-	-	-	-	-	-	-	-	-	SLD2017
	1.380	1.481	Tangent			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall)	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.481	1.547	Curve12	I-95 Over SW 8th St.		55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall)	Y			Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.547	1.706	Curve12		870356	55	12	Y (=12')	6	N (<10')	10	Y (=10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.706	1.785	Tangent		870356	55	12	Y (=12')	6	N (<10')	10	Y (=10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.785	1.825	Curve 5 N-S		870356	55	12	Y (=12')	4	N (<10')	9	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.825	1.935	Curve 6 N-S	I-95 Over SW 3rd St.	870356	55	12	Y (=12')	4	N (<10')	9	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			64.76	Y >14'	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.935		SR 970 Mainline WB	From Downtown Miami	870473	-	-	-	2	N (<10')	6	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			15.7 Over I-95 NB	N (<16') Y (Assuming alternate route has 16')	Ex. Bridge & Overpass Characteristics
	2.045		On Ramp 87270503	From NW 3rd Ct.	870478	-	-	-	2	N (<10')	4	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			27.09	Y >14'	Ex. Bridge & Overpass Characteristics
	1.935	2.064	Tangent		870356	55	12	Y (=12')	5	N (<10')	9.5	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.064	2.121	Curve 7 N-S		870356	55	12	Y (=12')	5.5	N (<10')	6.5	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.134		Off Ramp 87270505	To Downtown Miami	870474	-	-	-	3	N (<10')	3	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			14.41	Y >14'	Ex. Bridge & Overpass Characteristics
	2.223		Off Ramp 87270171	To SW 7th Ave.	870479	-	-	-	2	N (<10')	4	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			15.7	Y >14'	Ex. Bridge & Overpass Characteristics
	2.121	2.520	Tangent	Over NW 4 St.	870356	55	12	Y (=12')	6.5	N (<10')	9.5	N (<10')	-	-	-	-	-	-			Continuous Post and Beam	N (Obsolete)			14.46	Y >14'	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.000	1.198	Tangent			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y	-		Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.198	1.278	Tangent	Over SW 15th Rd.	870452	55	12	Y (=12')	8.484	N (<10')	5.906	N (<10')	0.016	Y (>0.015,<0.030)	0.016	N (<0.020)	0.016	N (<0.020)			32" F Shape	Y	-		14.439	Y >14'	Bridge No. 870355 AsBuilt_No.251662
	1.278	1.287	Curve9		870452	55	12	Y (=12')	8.484	N (<10')	5.906	N (<10')	0.016	Y (>0.015,<0.030)	0.016	N (<0.020)	0.016	N (<0.020)			-		-		-		Bridge No. 870355 AsBuilt_No.251662
	1.287	1.346	Curve9			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier (L-Wall) with Opaque Visual Barrier	Y	-		Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2017
	1.346	1.494	Tangent			55	12	Y (=12')	10	Y (=10')	10	Y (=10')	0.02	Y (>0.015,<0.030)	0.06	Y (=0.060)	0.02	Y (=0.020)	Median Barrier	Y	-		Thrie-Beam - H=1.8 feet	Y (H>1.75')	-		AsBuilt_No.251662 SLD2018
	1.353		Off Ramp 87270169	To SW 8th St.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SLD2017
	1.468		On Ramp 87270501	From SW 8th St.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	SLD2017

	1.494	1.547	Tangent	I-95 Over SW 8th St.	870453	55	12	Y (=12')	5.88	N (<10')	1.13	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.625		On Ramp 87270170	From SW 8th St.	870471	-	-	-	1	N (<10')	2	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		Ex. Bridge & Overpass Characteristics
Northbound	1.547	1.634	Curve 1 S-N		870453	55	12	Y (=12')	5.88	N (<10')	1.13	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.634	1.755	Curve 2 S-N		870453	55	12	Y (=12')	6	N (<10')	9.38	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.755	1.898	Tangent	Over SW 3rd St.	870453	55	12	Y (=12')	6	N (<10')	8	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	57.62	N (<75')	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.898	1.948	Curve 3 S-N		870453	55	12	Y (=12')	4	N (<10')	8	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.948	2.088	Curve 4 S-N		870453	55	12	Y (=12')	6	N (<10')	10	Y (=10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	1.952		SR 970 Mainline EB	To Downtown Miami	870472	-	-	Y (=12')	4	N (<10')	2	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	14.88	Y >14'	Ex. Bridge & Overpass Characteristics
	2.107		Off Ramp 87270504	To NW 3rd Ave.	870476	-	-	-	2	N (<10')	4	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	17.84	Y >14'	Ex. Bridge & Overpass Characteristics
	2.088	2.157	Tangent		870453	55	12	Y (=12')	6	N (<10')	10	Y (=10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.157	2.244	Curve 5 S-N		870453	55	12	Y (=12')	5	N (<10')	10	Y (=10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	-		AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table
	2.244		On Ramp 87270506	From Downtown Miami	870475	-	-	-	4	N (<10')	2	N (<10')	-	-	-	-	-	-	Continuous Post and Beam	N (Obsolete)	-	14.5	Y >14'	Ex. Bridge & Overpass Characteristics
	2.244	2.520	Tangent	Over NW 4 St.	870453	55	12	Y (=12')	5	N (<10')	10	Y (=10')	-	-	-	-	-	-	32" F Shape	Y	-	14.08	Y >14'	AsBuilt_No.251540-1, SLD2017, TOPO KHA, AECOM Structure Table

Appendix R

REFINED BUILD CONCEPT DESIGN CRITERIA

General Purpose Lane & Express Lane Design Criteria

Design Elements	Criteria		Source
	60 mph - General Use	60 mph - Express	
Functional Classification	Urban Principal Arterial Interstate (SIS)		FDOT Straight Line Diagram
Access Classification	Class 1 (Area Type 2)		FDM Table 201.3.1
Interchange Spacing	2 miles (Area Type 2)		FDM Table 201.3.1
Number of Lanes	6-8 General Use Lanes	2-4 Express Lanes	Existing Conditions
Design Vehicle	WB-62FL		FDM Section 201.5
Design Speed	60 mph		FDM Table 201.4.1
Posted Speed	55-60 mph		
Lane Widths	12-ft (Std.)	12-ft (Std.)	FDM Table 210.2.1
Shoulder Width			
Outside / Right Shoulder Width	10-ft	10-ft	AASHTO Section 4.4.2
Inside / Left Shoulder Width	10-ft	10-ft	
Bridge Width	Travel lanes + 10' Shoulders		FDM Figure 260.1.1
Vertical Clearance			
Roadway over Roadway	16-ft – 6-inch		FDM Table 260.6.1
Roadway over Railroad	23-ft – 6-inch		FDM Table 260.6.1
Overhead Sign Structure	17-ft – 6-inch		FDM Section 210.10.3
Roadway over Canal	2-ft Min from Design Flood Stage and Bridge Low Member Elev. & 6-ft above Normal High Elevation or control elevation		FDM Section 260.8.1
Grades			
Maximum	3% (Interstate)		FDM Table 211.9.1 FDM Section 211.9.1
Cross Slopes			
Travel Lanes	2% (N.C.)		FDM Figure 211.2.1
Outside / Right Shoulder	6%		FDM Section 211.4.2 FDM Figure 211.4.1
Inside / Left Shoulder	5% for 3-lanes or less 6% for 4-lanes or more		
Bridge Pavement Deck	2%		FDM Section 211.2.2
Max Algebraic Difference Between Adjacent Through Lanes	4%		FDM Figure 211.2.1
Max Algebraic Difference at Turning Road Terminals	5%		FDM Table 211.2.2
Maximum Shoulder Cross Slope Break	7%		FDM Figure 211.4.1
Superelevation (e)			
Maximum Superelevation Rate	e_{max} = 10%		FDM Table 210.9.1 FDM Section 210.9
Superelevation Transition Rate	1:225 for 2-4 lanes 1:180 for 6 lanes 1:170 for 8 lanes		FDM Table 210.9.3
Superelevation Ratio	20:80 preferred, 50:50 minimum		FDM Section 210.9.1 Standard Plans Index 000-510
Horizontal Alignment			
Min. Length of Horizontal Curves	15V, 1800-ft desirable, 900-ft min.		FDM Table 211.7.1
Maximum Deflection Without Curve	0° 45' 00"		FDM Section 210.8.1
Auxiliary Lane Length	Min 2500 ft un advance of the exit of after entry		AASHTO 2011 Figure 10-52 & 10-53
Compound Curves	R1 > R2 R1/R2 ≤ 1.5 or R1/R2 ≤ 2		FDM Section 210.8.2.2
Vertical Alignment			
Max Change in Grade w/o Curve	0.4		FDM Table 210.10.2

General Purpose Lane & Express Lane Design Criteria

Design Elements	Criteria		Source
	60 mph - General Use	60 mph - Express	
Min. Length of Crest Curve	Open Highway: L=KA but not < 1000ft Interchange: L=KA but not < 1800ft		FDM Table 211.9.2 FDM Table 211.9.3
Minimum Crest K-Value	313		
Minimum Length of Sag Curve	L=KA but not < 800ft		FDM Table 211.9.2 FDM Table 211.9.3
Minimum Sag K-Value	157		
Stopping Sight Distance	645-ft (Interstate)		FDM Table 211.10.1
Clear Zone / Min. Recoverable Terrain			
Travel Lanes	36-ft		FDM Table 215.2.1
Auxiliary Lanes	24-ft		
Horizontal Clearance			
Bridge Piers	Outside Clear Zone		FDM Table 215.2.2
Above Ground Fixed Objects (AFUs)			
New AFUs Other than Mid-Span Poles	Outside Clear Zone, and as close to R/W as practical		
New AFUs Mid-Span Poles at Intersecting Roadways	Outside Clear Zone, and as close to R/W as practical		
Existing AFUs	Outside Clear Zone, and as close to R/W as practical		
Trees	Outside Clear Zone		
Light Poles	20-ft from travel lanes, 14-ft from auxiliary lanes, or Clear Zone widths		
Drop-off and Canal Hazards	60-ft from Edge of Travel Lane, auxiliary lane, or ramp		FDM Figure 215.3.1
Median Width	64-ft without Barrier Wall 26-ft with Barrier Wall		FDM Table 211.3.1 FDM Section 211.3
Border Width	94-ft (Std.) 10-ft (Min.) - with roadside barriers		FDM Section 211.6 FDM Section 211.16
Roadway Base Clearance	3.0-ft above SHGW Elev.		FDM Section 210.10.3
Roadside Slopes			
Front Slope	1:6 for fills < 5-ft; 1:6 to edge of CZ then 1:4 for fills 5-ft-10-ft; 1:6 to edge of CZ then 1:3 for fills 10-ft-20-ft; 1:2 (with guardrail) for fills > 20-ft		FDM Table 215.2.3
Back Slope	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope		
Transverse Slope	1:10 or Flatter		

Ramp Design Criteria

Design Elements	Criteria					Source
	50	45	40	35	30	
Design Vehicle	WB-62FL					FDM Section 201.5
Design Speed	50 mph	45 mph	40 mph	35 mph	30 mph	FDM Section 201.4.1.1
Lane Widths						
One-Lane Ramps	15-ft					FDM Section 211.2.1
Two-Lane Ramps	24-ft					
Shoulder Width						
Outside / Right Shoulder Width	1 Lane - 4' paved, 6' full width 2 lane or more - 10' paved, 12' full width 3 lane or more - 10' paved, 12' full width					FDM Table 211.4.1
Inside / Left Shoulder Width	1 lane - 2' paved, 6' full width 2 lane - 4' paved, 8' full width 3 lane or more - 10' paved, 12' full width					
Bridge Width						
One-Lane Ramps	Travel lane + 6' outside shoulder + 6' inside shoulder					FDM Figure 260.1.1
Two-Lane Ramps	Travel lane + 10' outside shoulder + 6' inside shoulder					
Vertical Clearance						
Roadway over Roadway	16-ft – 6-inch					FDM Table 260.6.1
Roadway over Railroad	23-ft – 6-inch					FDM Table 260.6.1
Overhead Sign Structure	17-ft – 6-inch					FDM Section 210.10.3
Roadway over Canal	2-ft Min from Design Flood Stage and Bridge Low Member Elev. & 6-ft above Normal High Elevation or control elevation					FDM Section 260.8.1
Grades						
Maximum	5%	5%	6%	6%	7%	FDM Section 211.9.1 FDM Table 211.9.1
Cross Slopes						
Travel Lanes	2% (N.C.)					FDM Figure 211.2.1
Outside / Right Shoulder	6%					FDM Section 211.4.2 FDM Figure 211.4.1
Inside / Left Shoulder	5%					
Bridge Pavement Deck	2%					FDM Section 211.2.2
Max Algebraic Difference Between Adjacent Through Lanes	4%					FDM Figure 211.2.1
Max Algebraic Difference at Turning Road Terminals	5%	5%	5%	6%	6%	FDM Table 211.2.2
Maximum Shoulder Cross Slope Break	7%					FDM Figure 211.4.1

Ramp Design Criteria

Design Elements	Criteria					Source
	50	45	40	35	30	
Superelevation (e)						
Maximum Superelevation Rate	e_{max} = 10%					FDM Table 210.9.1 FDM Section 210.9
Superelevation Transition Rate 1 & 2-Lane	1:200	1:175				FDM Table 210.9.3
Superelevation Transition Rate 3-Lane	1:160	N/A				FDM Table 210.9.3
Superelevation Ratio	20:80 preferred, 50:50 minimum					FDM Section 210.9.1 Standard Plans Index 000-510
Horizontal Alignment						
Min. Length of Horizontal Curves	1500-ft desirable, min. 750-ft	675-ft desirable, min. 400-ft	600-ft desirable, min. 400-ft	525-ft desirable, min. 400-ft	450-ft desirable, min. 400-ft	FDM Table 211.7.1
Maximum Deflection Without Curve	0° 45' 00"	2° 00' 00"				FDM Section 210.8.1
Compound Curves	R1 > R2 R1/R2 ≤ 1.5 or R1/R2 ≤ 2					FDM Section 210.8.2.2
Exit Ramp Taper Angle	4° +/-					Standard Plans Index 000-525
Ramp Entrance Taper Length	1:50					Standard Plans Index 000-525
Lane Drop Taper	1:50 min., 1:70 desirable					AASHTO 2011 Figure 10-52
Ramp Terminal Spacing						
Entrance - Entrance or Exit - Exit	1000-ft for freeways 800-ft for CD Road System					FDM Figure 211.12.1
Exit - Entrance	500-ft for freeways 400-ft for CD Road System					
Turning Roadways	800-ft for freeways 600-ft for CD Road System					
Entrance - Exit	2000-ft for system to service - freeways 1600-ft for service to service - freeways 1600-ft for system to service - C-D Road 1000-ft for service to service - C-D Road					
Vertical Alignment						
Max Change in Grade w/o Curve	0.6	0.7	0.8	0.9	1.0	FDM Table 210.10.2
Min. Length of Crest Curve	L=KA but not < 300ft	L=KA but not < 135ft	L=KA but not < 120ft	L=KA but not < 105ft	L=KA but not < 90ft	FDM 211.9.3
Minimum Crest K-Value	136	98	70	47	31	FDM Table 211.9.2
Minimum Length of Sag Curve	L=KA but not < 200ft	L=KA but not < 135ft	L=KA but not < 120ft	L=KA but not < 105ft	L=KA but not < 90ft	FDM 211.9.3
Minimum Sag K-Value	96	79	64	49	37	FDM Table 211.9.2
Stopping Sight Distance	425-ft	360-ft	305-ft	250-ft	200-ft	FDM 211.10.2
Horizontal Clearance						

Ramp Design Criteria

Design Elements	Criteria					Source
	50	45	40	35	30	
Bridge Piers	Outside Clear Zone					FDM Table 215.2.2
Above Ground Fixed Objects (AFUs)						
New AFUs Other than Mid-Span Poles	Outside Clear Zone, and as close to R/W as practical					
New AFUs Mid-Span Poles at Intersecting Roadways	Outside Clear Zone, and as close to R/W as practical					
Existing AFUs	Outside Clear Zone, and as close to R/W as practical					
Trees	Outside Clear Zone					
Light Poles	20-ft from travel lanes, 14-ft from auxiliary lanes, or Clear Zone widths					
Drop-off and Canal Hazards	60-ft from Edge of Travel Lane	50-ft from Edge of Travel Lane				FDM Figure 215.3.1
Border Width	10-ft Min. - with roadside barriers					FDM Section 211.16
Roadway Base Clearance	2.0-ft above SHGW Elev. (Ramp Proper) 1.0-ft above SHGW Elev. (Low point on Ramps at Cross Roads)					FDM Section 210.10.3
Roadside Slopes						
Front Slope	1:6 for fills < 5-ft; 1:6 to edge of CZ then 1:4 for fills 5-ft-10-ft; 1:6 to edge of CZ then 1:3 for fills 10-ft-20-ft; 1:2 (with guardrail) for fills > 20-ft					FDM Table 215.2.3
Back Slope	1:4 or 1:3 with a standard width trapezoidal ditch and 1:6 front slope					
Transverse Slope	1:4 desirable					

Appendix S

REFINED BUILD CONCEPT CONCEPTUAL PLANS

FDOT DISTRICT SIX

Segment 1 - US-1 to South of SR 836

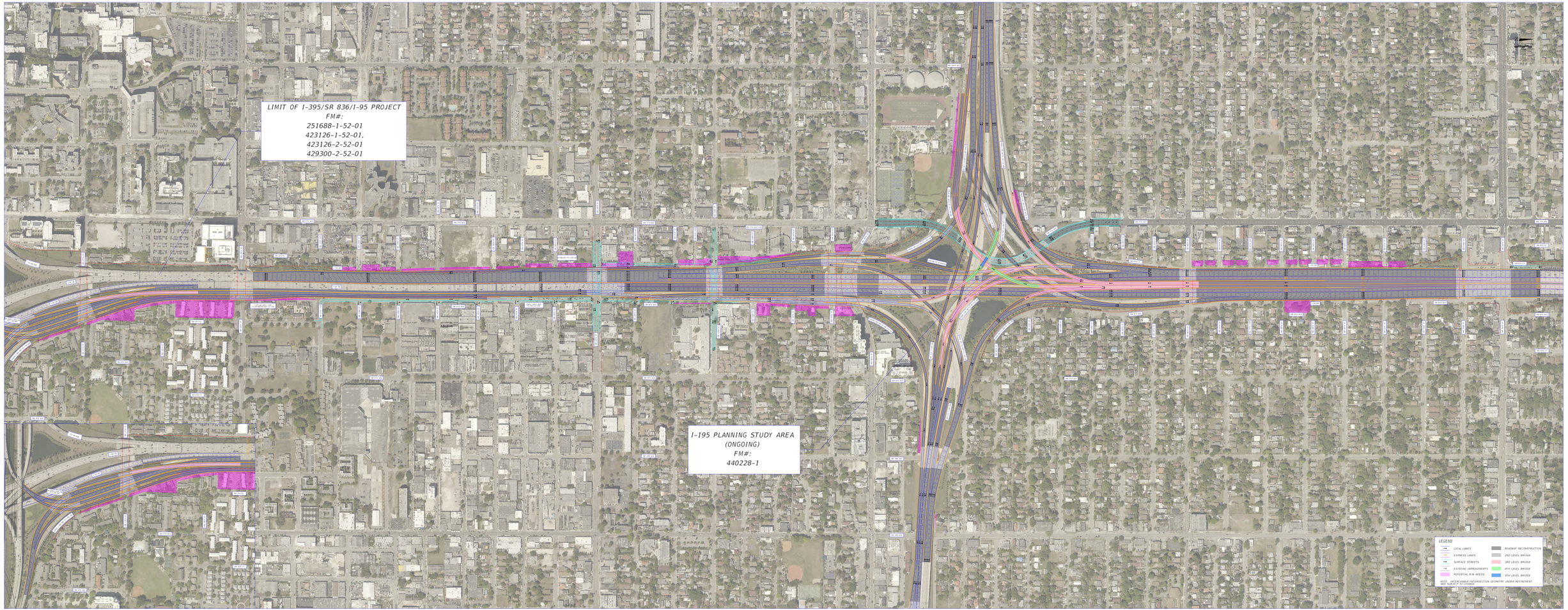
for Operational Deficiencies US-1/SR 5 to Broward County Line

MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Segment 2 - South of I-195 to North of I-195

for Operational Deficiencies US-1/SR 5 to Broward County Line

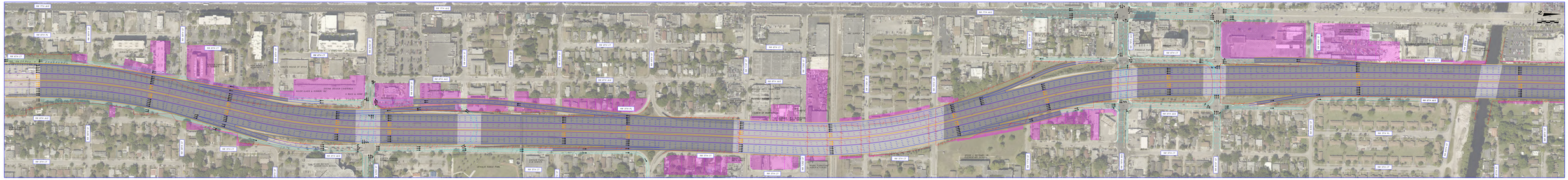


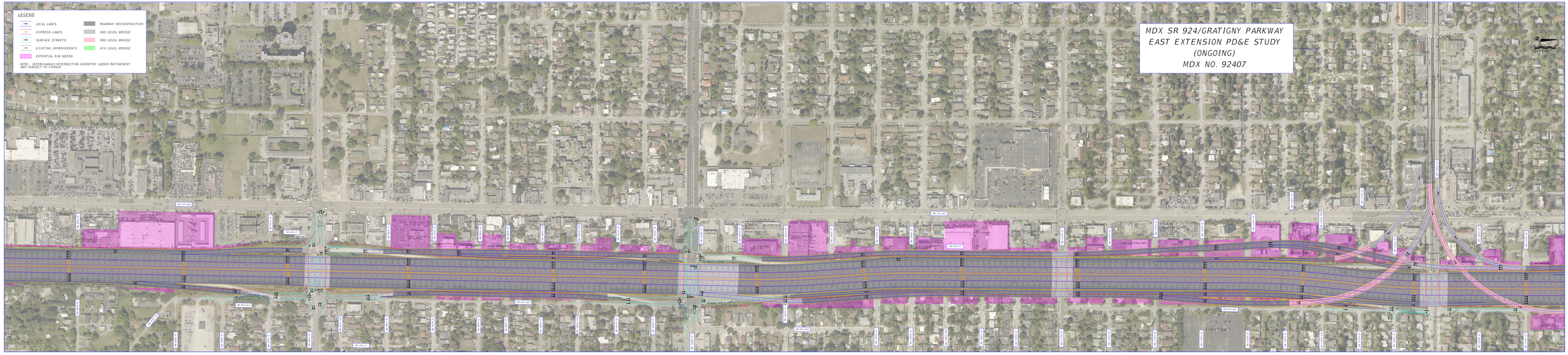
MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Segment 3 - North of I-195 to South of GGI

for Operational Deficiencies US-1/SR 3 to Broward County Line





MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Segment 4 - Golden Glades Interchange (GGI)

for Operational Deficiencies US-1/SR 5 to Broward County Line

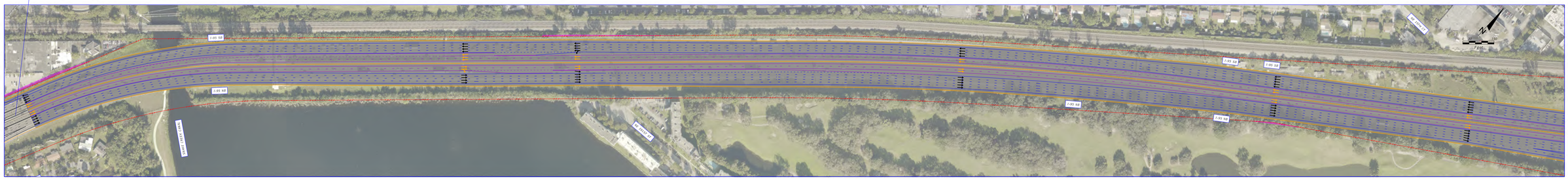
INTERSTATE 95 Corridor Planning Study

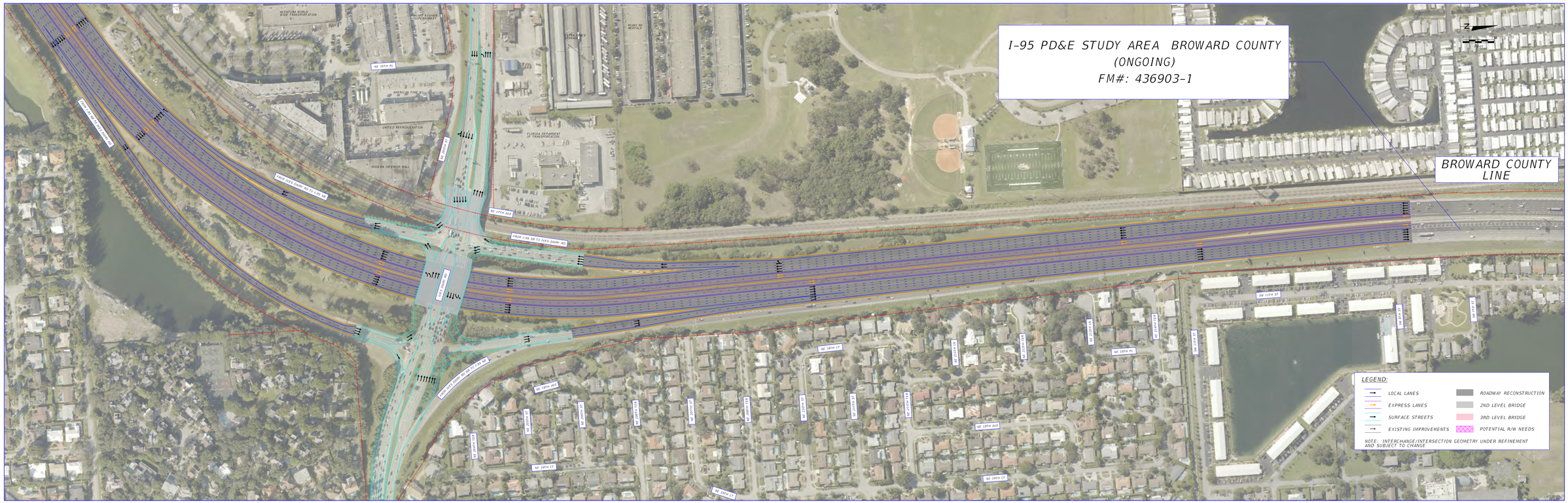
MIAMI-DADE COUNTY

FDOT DISTRICT SIX

Segment 5 - North of GGI to County Line

GOLDEN GLADES INTERCHANGE ENHANCEMENT PROJECTS
FM#:
428358-1-52-01, 428358-4-52-01, 428358-5-52-01,
428358-8-52, 437053-1-52-01, 437053-2-52-01,
437053-3-52-01, 437053-4-52-01 & 437053-5-52-01





for Operational Deficiencies US-1/SR 5 to Broward County Line

INTERSTATE 95 Corridor Planning Study

MIAMI-DADE COUNTY

Appendix T

REFINED BUILD CONCEPT DESIGN PLANS

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

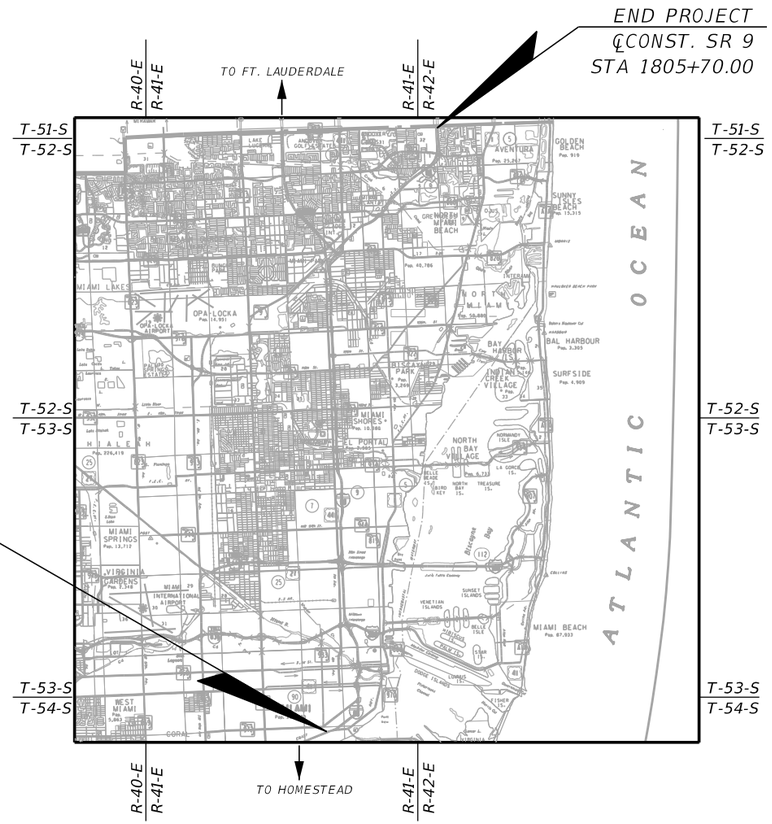
CONCEPT PLANS

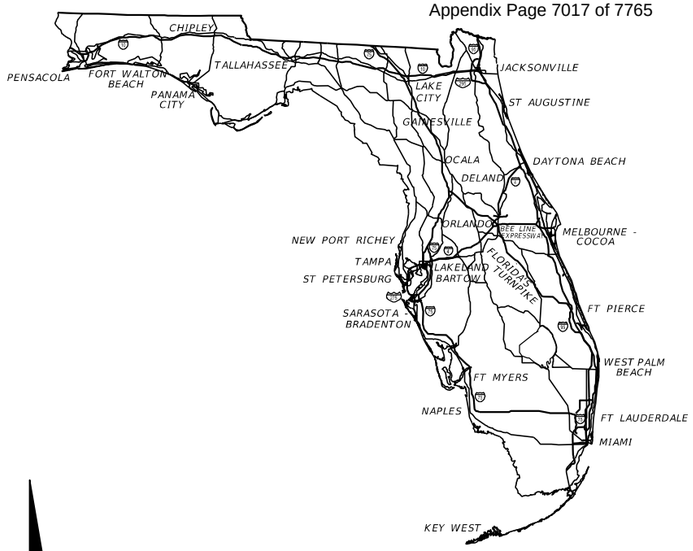
FINANCIAL PROJECT ID 414964-6-22-01

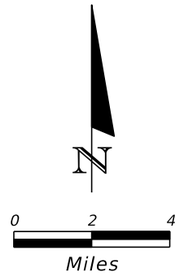
MIAMI-DADE COUNTY (87150)

STATE ROAD NO.9/ I-95 EXPRESSWAY

FROM US-1 TO BROWARD COUNTY LINE







INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 - 21	TYPICAL SECTIONS
22 - 27	PROJECT LAYOUT
28 - 32	CURVE DATA
33 - 123	ROADWAY PLANS

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY 2019-20 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

Standard Plans for Bridge Construction are included in the Structures Plans Component

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2019 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

ROADWAY PLANS ENGINEER OF RECORD:

RAMON BRETON, P.E. 53139
KIMLEY-HORN AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
189 SOUTH ORANGE AVENUE - SUITE 1000
ORLANDO, FLORIDA 32801
PHONE (407) 898-1511

CONTRACT NO. C9D32
VENDOR NUMBER: F560885615-001
CERTIFICATE OF AUTHORIZATION NO. 696

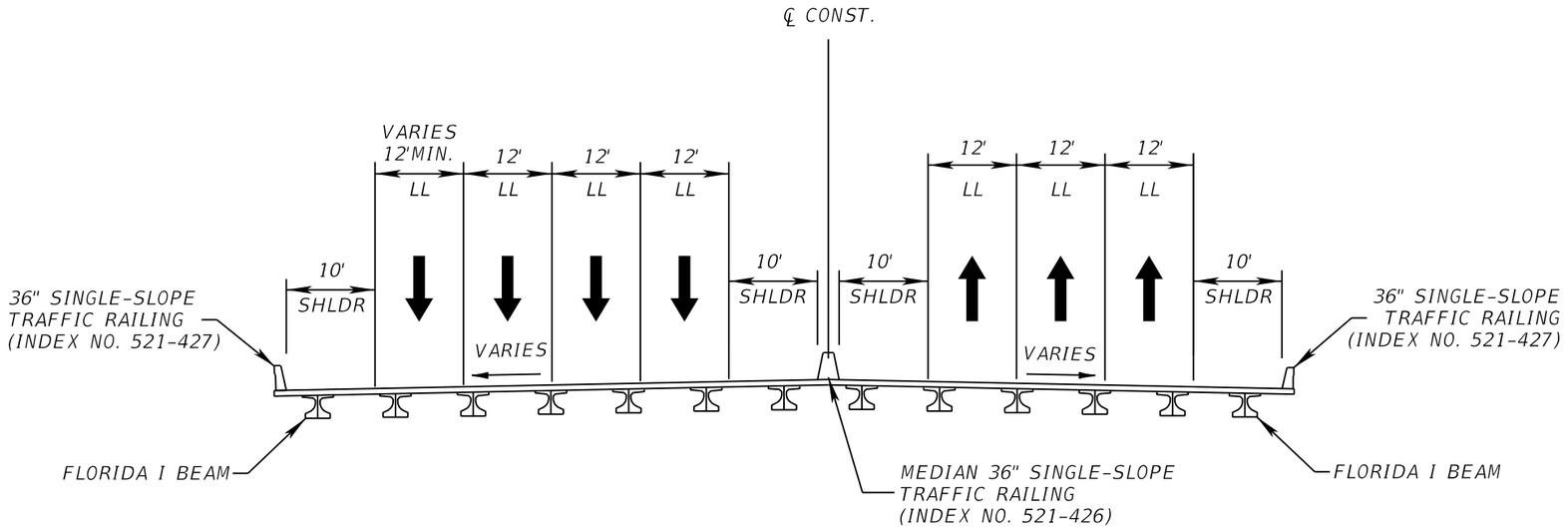
FDOT PROJECT MANAGER:

KENNETH JEFFRIES

FISCAL YEAR	SHEET NO.
19	

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

$USER$ $DATE$ $TIME$ $FILE$



TYPICAL SECTION FOR SEGMENT 1
SR 9A/I-95 OVER SW 3RD AVE. & SW 15TH RD.
STA. 947+13 TO STA. 952+15
DESIGN SPEED = 55 MPH

NEW CONSTRUCTION

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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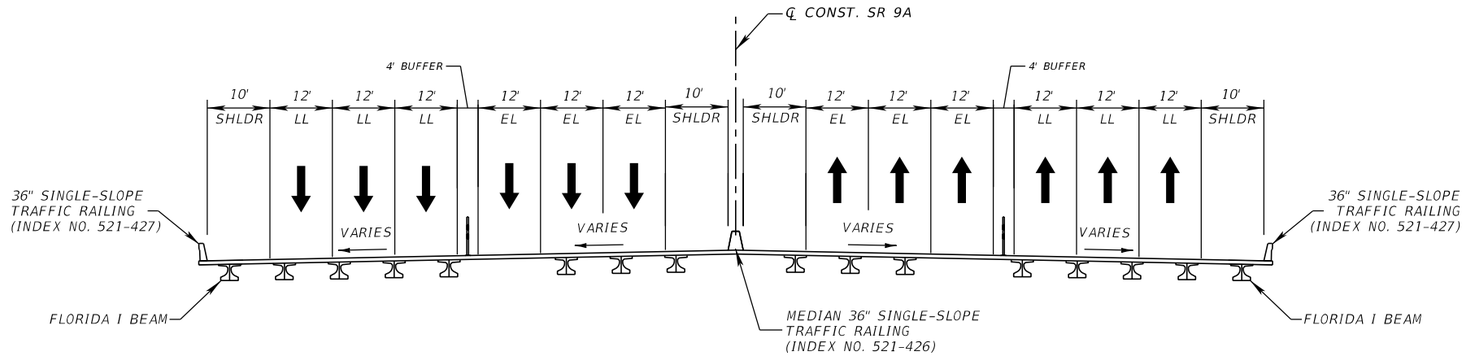


TYPICAL SECTION
SR 9A/I-95 BRIDGE OVER LOCAL ROADS
WITH EXPRESS LANES

BRIDGE RECONSTRUCTION

NOT TO SCALE

NOTE: NUMBER OF LANES VARIES

DESIGN SPEED = 60 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

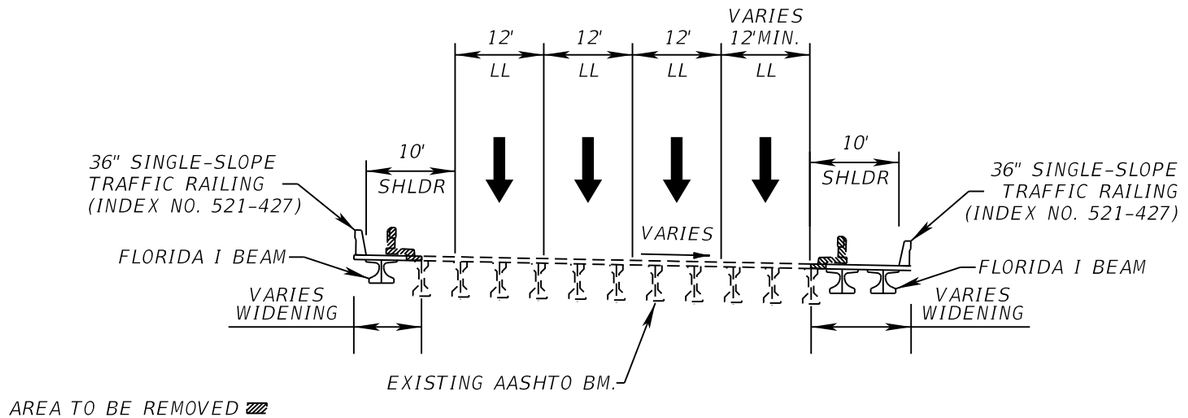
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION FOR SEGMENT 1
SR 9A/I-95 SOUTHBOUND OVER SW 3RD ST.
STA. 984+00 TO STA. 987+00
DESIGN SPEED = 55 MPH

BRIDGE WIDENING

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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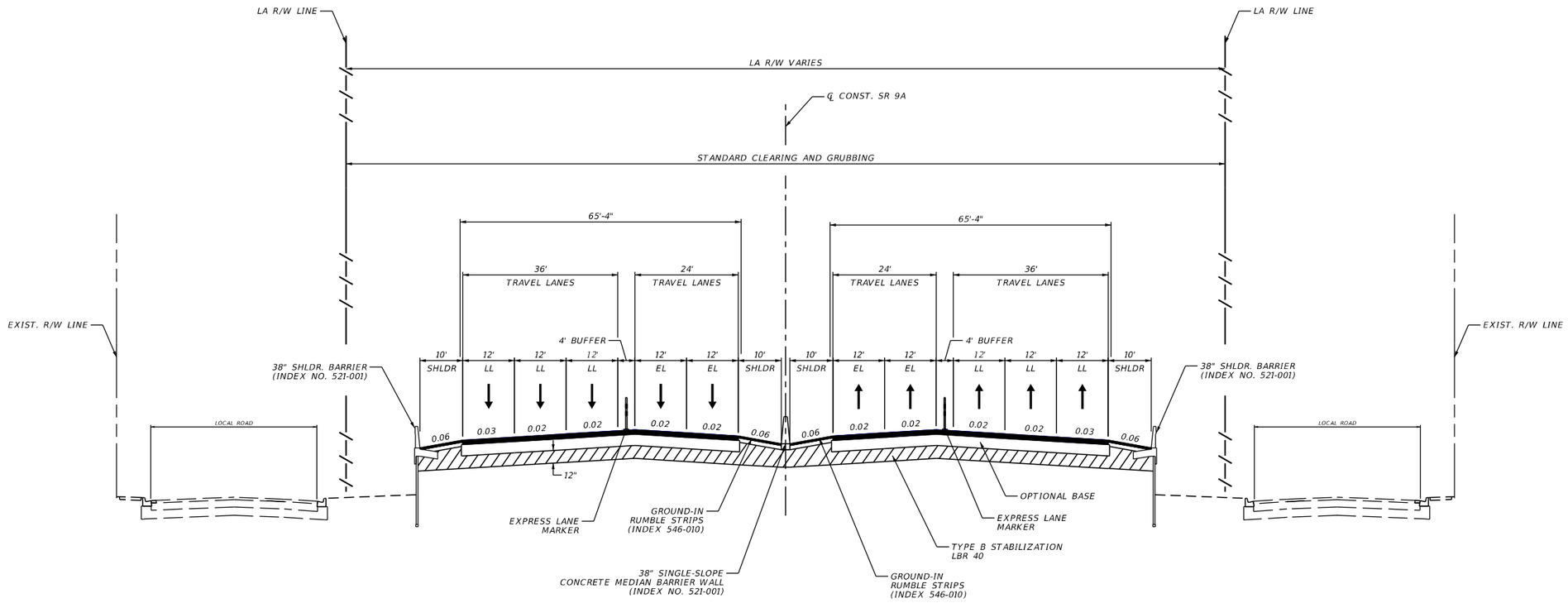

TYPICAL SECTION
I-95 (SR 9A)
SEGMENT 2
STA. 1053+85 TO STA. 1188+52

RECONSTRUCTION

NOT TO SCALE

DESIGN SPEED = 60 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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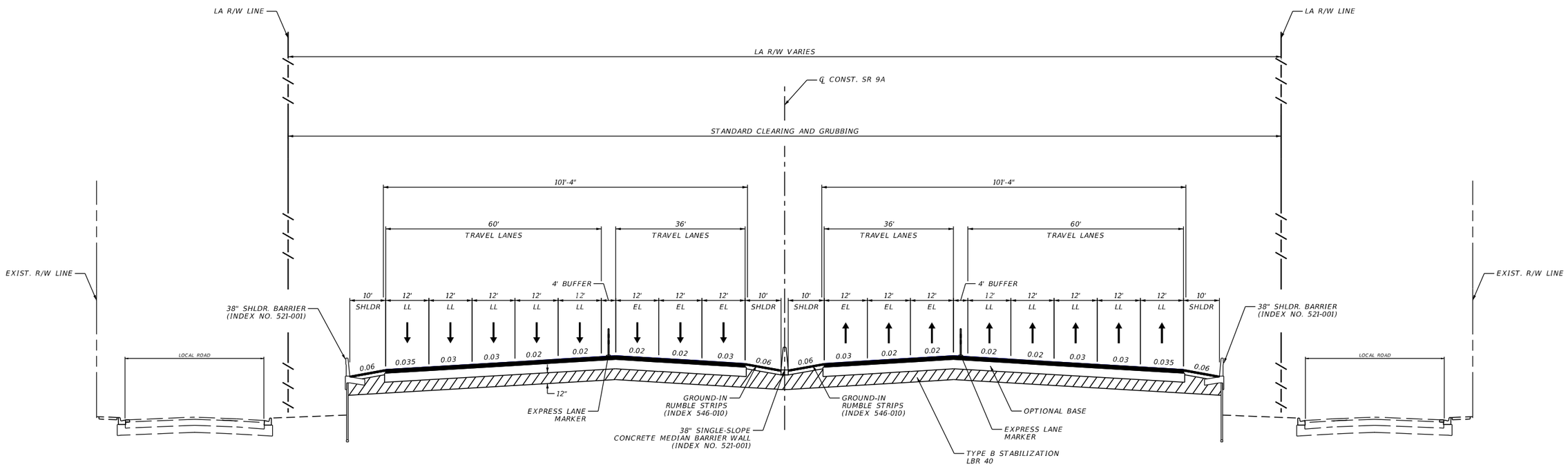

TYPICAL SECTION
I-95 (SR 9A)
SEGMENT 3
STA. 1188+52 TO STA. 1510+04

RECONSTRUCTION

NOT TO SCALE

DESIGN SPEED = 60 MPH

REVISIONS					STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 9A	MIAMI-DADE	414964-6-22-01		

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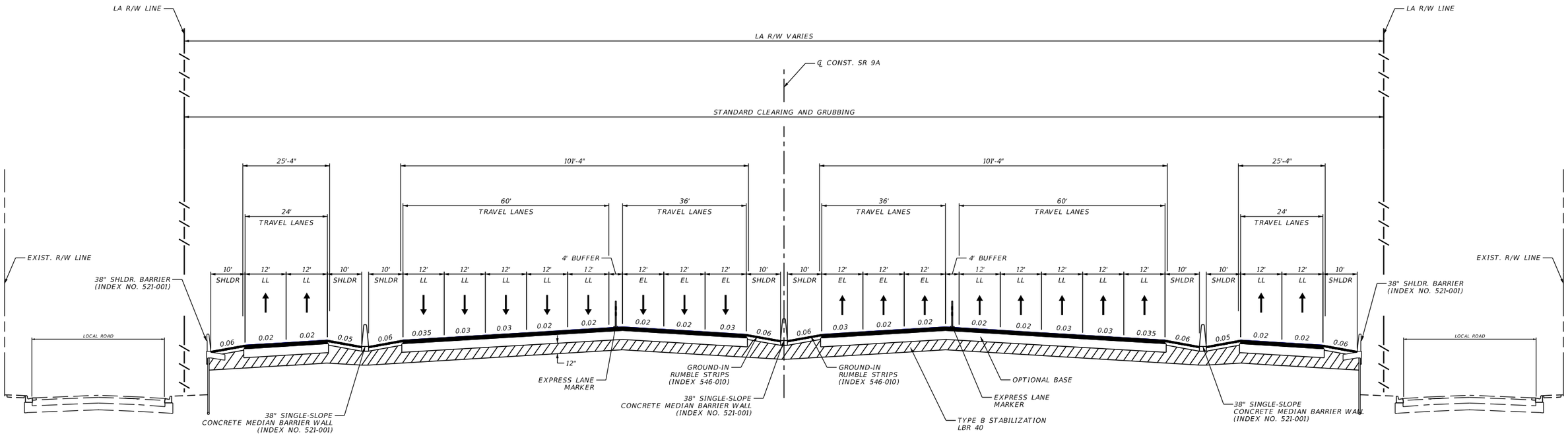

TYPICAL SECTION
I-95 (SR 9A)
SEGMENT 3
WITH CD ROAD
STA. 1348+00 TO STA. 1457+90

RECONSTRUCTION

NOT TO SCALE

DESIGN SPEED = 60 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

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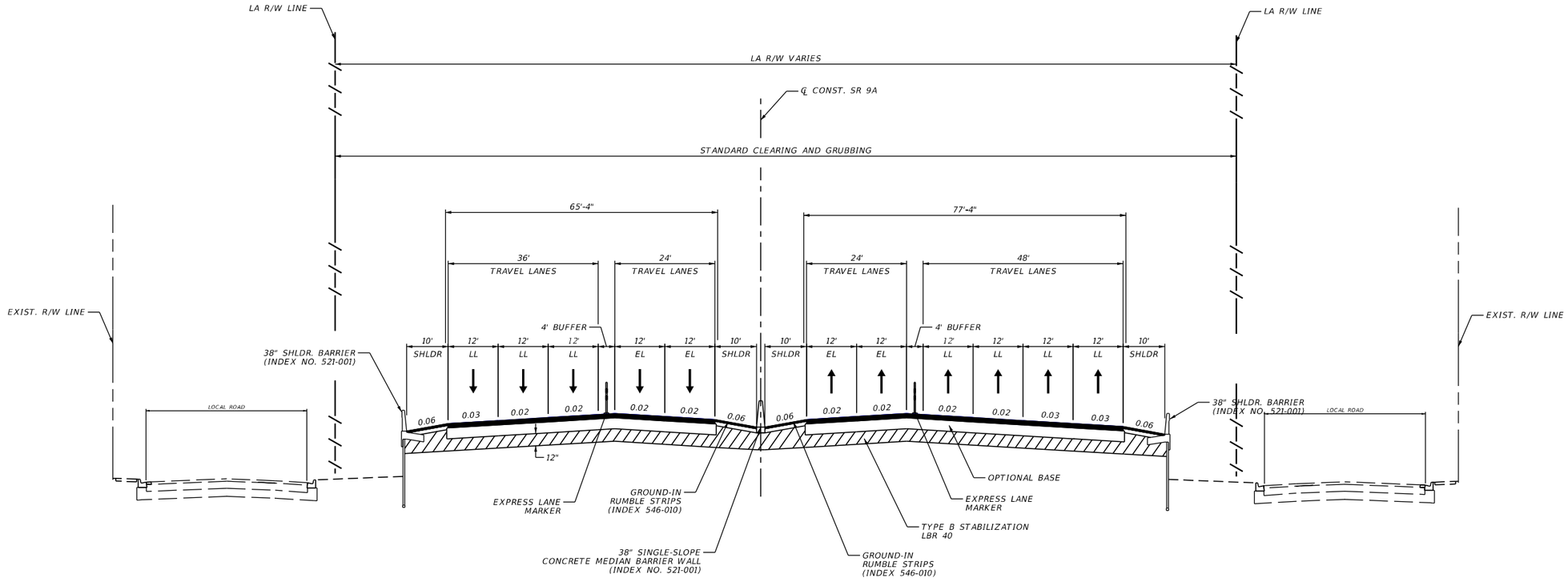

TYPICAL SECTION
I-95 (SR 9A)
SEGMENT 4
STA. 1510+04 TO STA. 1580+42

RECONSTRUCTION

NOT TO SCALE

DESIGN SPEED = 60 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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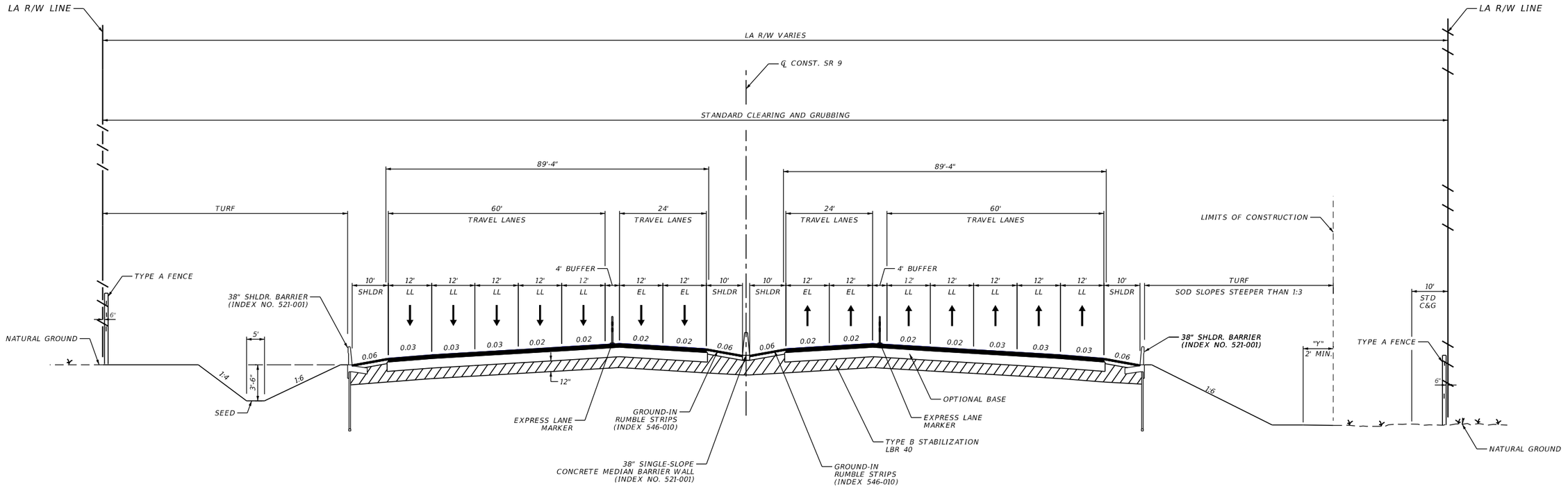

TYPICAL SECTION
I-95 (SR 9A)
SEGMENT 5
STA. 1662+80 TO STA. 1805+67

RECONSTRUCTION

NOT TO SCALE

DESIGN SPEED = 60 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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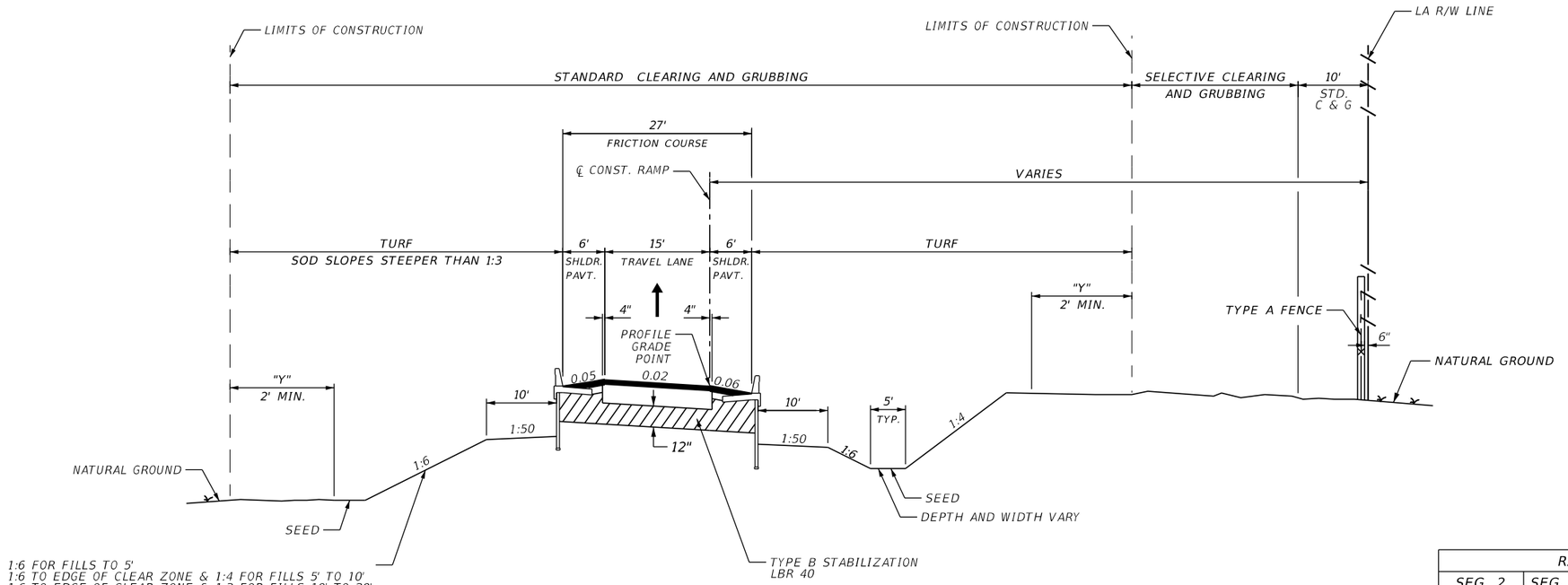

1:6 FOR FILLS TO 5'
1:6 TO EDGE OF CLEAR ZONE & 1:4 FOR FILLS 5' TO 10'
1:6 TO EDGE OF CLEAR ZONE & 1:3 FOR FILLS 10' TO 20'
1:2 (WITH GUARDRAIL) FILLS OVER 20'

RAMPS			
SEG. 2	SEG. 3	SEG. 4	SEG. 5
2A1	3A	4E	5A
2B	3C	4F1	5B1
2D	3D	4G	5B2
2E2	3F	4H	5B3
2E4	3G2	4I	5D1
2E5	3G4		
2E6	3I		
2F2	3K		
2F3	3L		
2G1	3N		
2G2	3O		
2G3	3P		
2H1	3Q		
2H2	3R1		
CL_SR112	3R2		
CL_SR112_E	3S		
	3T1		

TYPICAL SECTION
(SINGLE LANE RAMP)

NEW CONSTRUCTION

DESIGN SPEED =
VARIES 35-50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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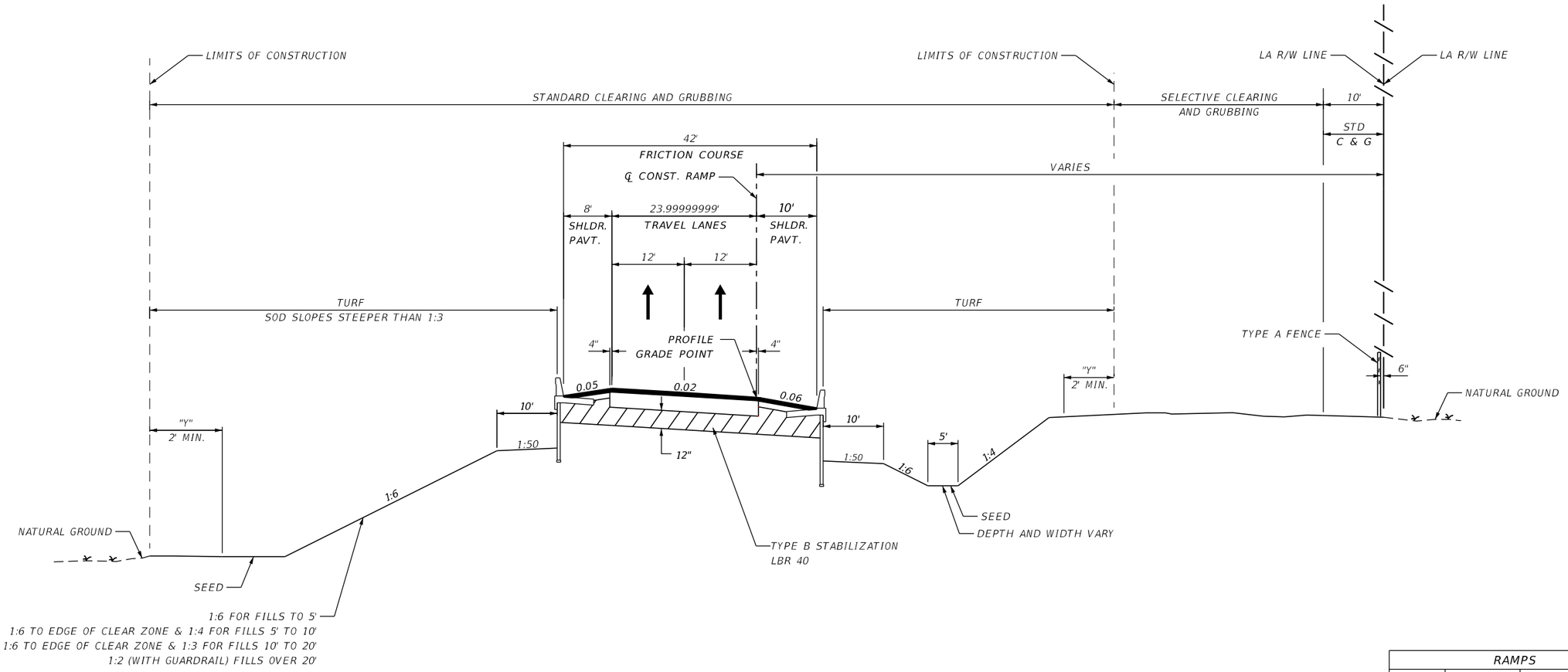


RAMPS			
SEG. 2	SEG. 3	SEG. 4	SEG. 5
2A1	3B	4D2	5A
2A2	3G	4F2	5C2
2C	3G2		5D1
2E1	3G4		5E1
2F1	3H		5F1
2G1	3I		
2G2	3K		
2H1	3M		
	CL_6TH_CT		

TYPICAL SECTION
(TWO LANE RAMP)

NEW CONSTRUCTION

DESIGN SPEED =
VARIES 35-50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

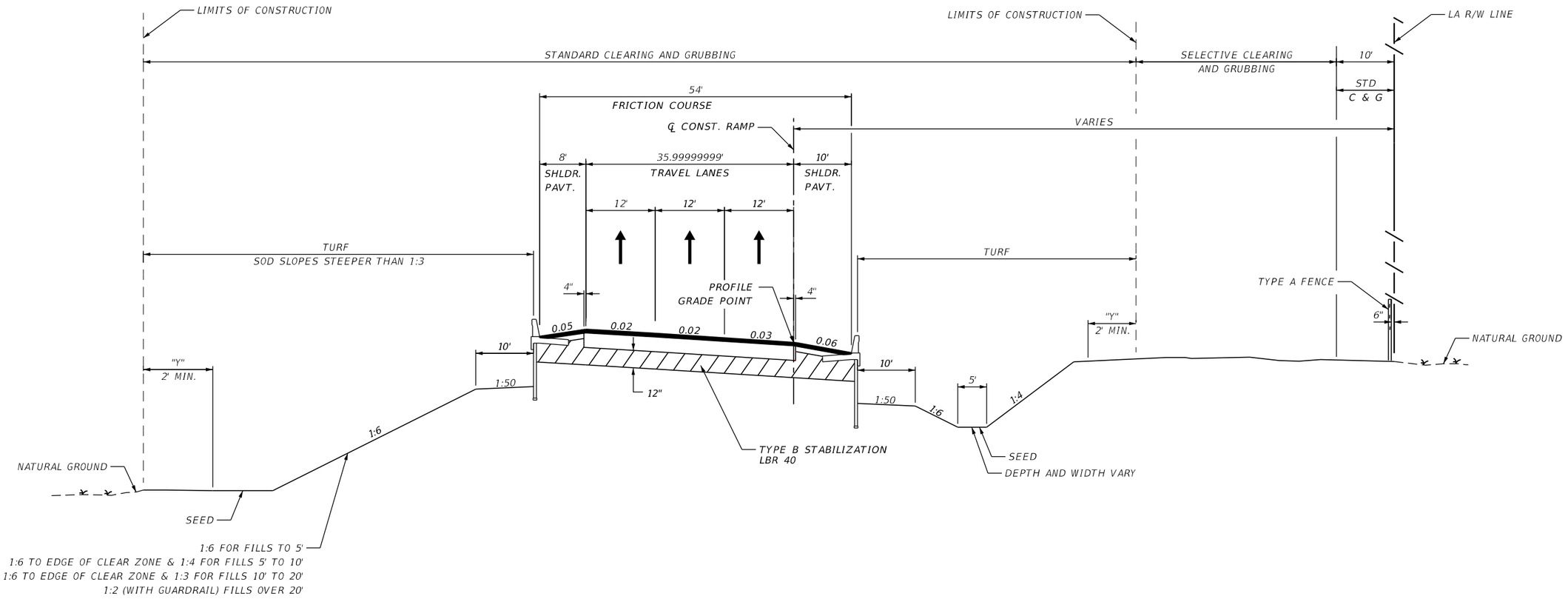
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION
(THREE LANE RAMP)

NEW CONSTRUCTION

RAMPS		
SEG. 2	SEG. 3	SEG. 4
2C	3G	4A
2E1	3K	4C
2F1		
2G3		
2H1		

DESIGN SPEED = 50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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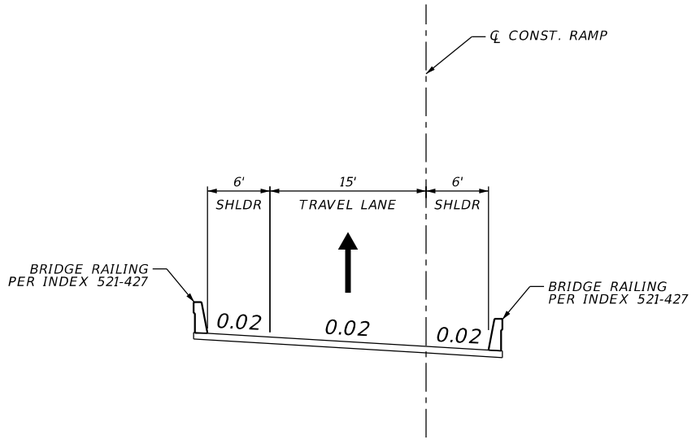


TYPICAL SECTION
(SINGLE LANE BRIDGE RAMP)

NEW RECONSTRUCTION

RAMPS			
SEG. 2	SEG. 3	SEG. 4	SEG. 5
2A1	3L	4E	5A
2B	3P	4F1	5B2
2C	3Q		5B3
2D	3S		
2E2			
2E5			
2E6			
2G1			
2G3			
2H1			
2H2			
CL_SR112_E			

DESIGN SPEED =
VARIES 35-50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

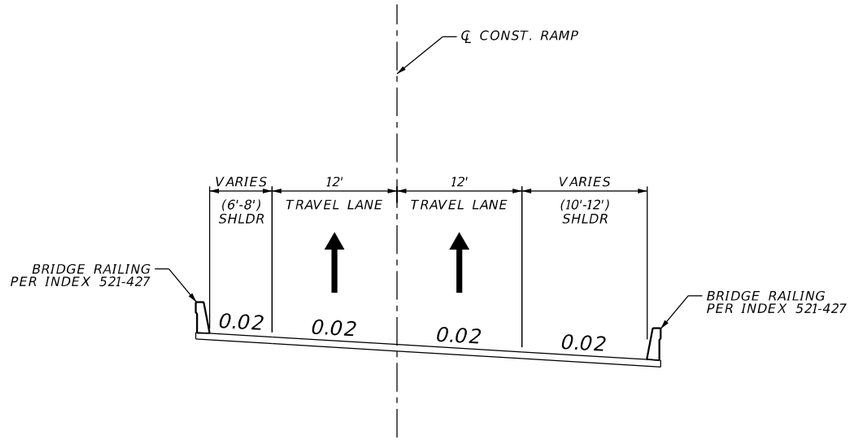
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION
(TWO LANE BRIDGE RAMP)

NEW RECONSTRUCTION

RAMPS	
SEG. 2	SEG. 3
2A1	3G
2A2	3G2
2C	3G4
2E1	3J
2F1	3M
2G1	
2H1	

DESIGN SPEED =
VARIES 35-50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

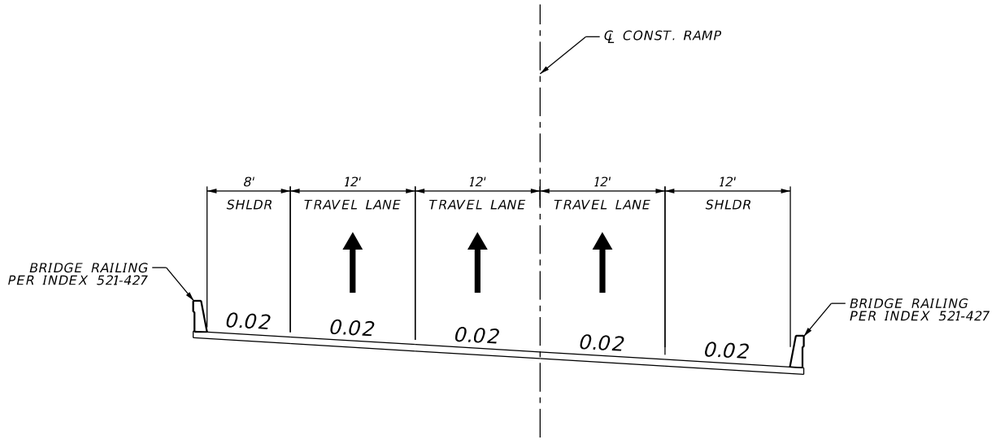
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION
(THREE LANE BRIDGE RAMP)

RAMPS	
SEG. 2	SEG. 3
2F1	3G
	3K

NEW RECONSTRUCTION

DESIGN SPEED =
VARIES 35-50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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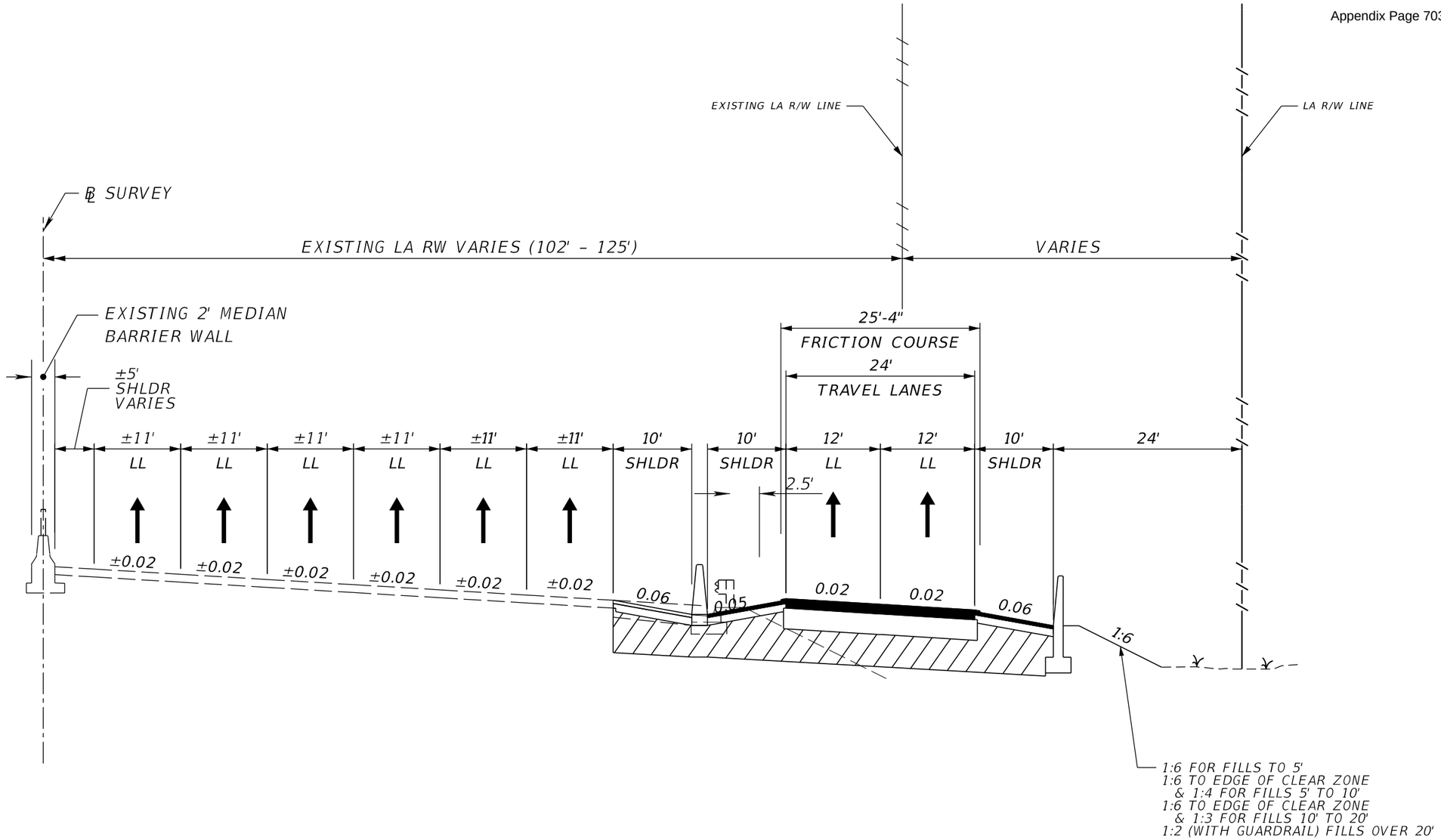


TYPICAL SECTION
I-95 (SR 9A)/WYNWOOD CD ROAD

STA. 1053+85 TO STA. 1107+80

NEW RECONSTRUCTION

DESIGN SPEED = 50 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

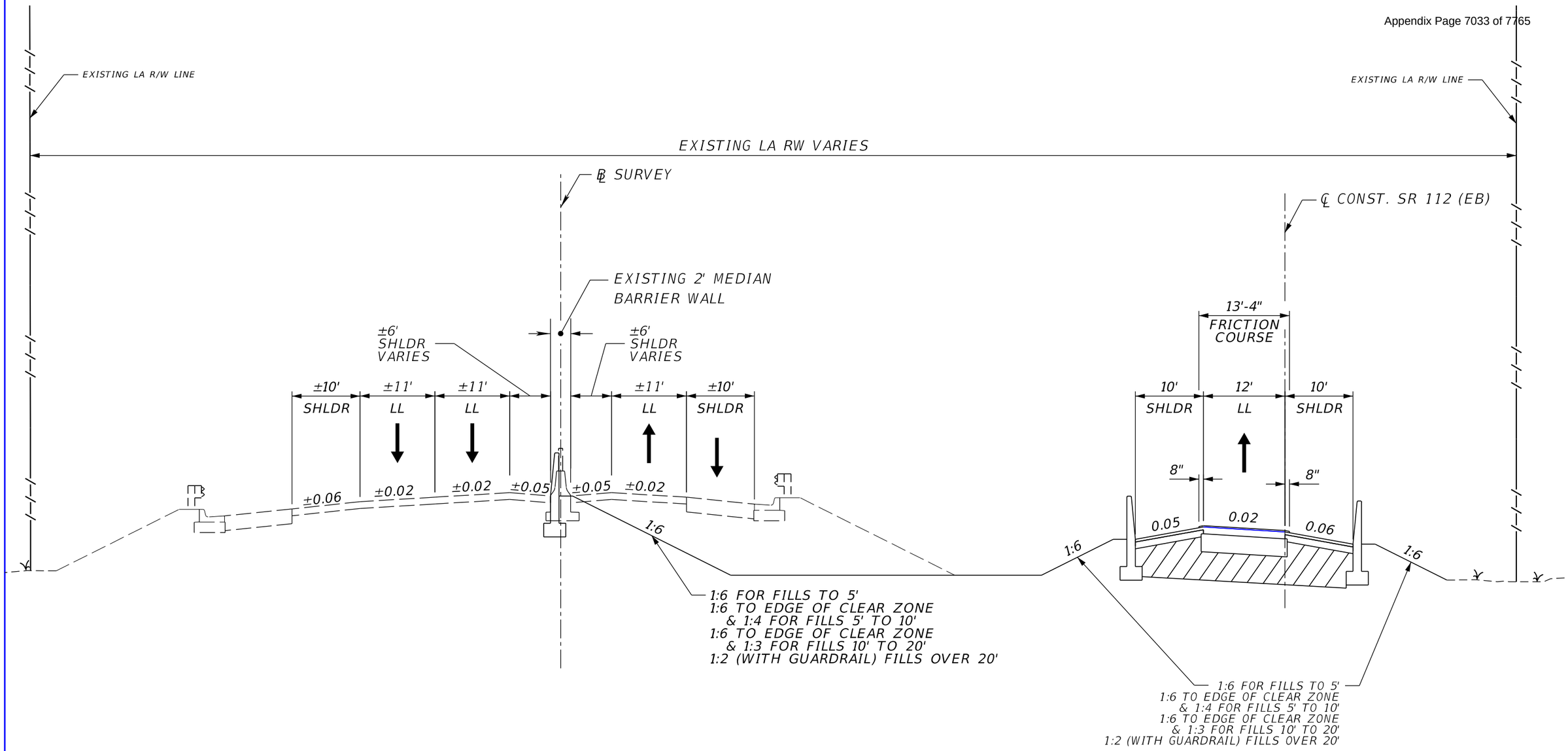
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION
SR 112/I-395

STA. 2012+65 TO STA. 2076+76

RECONSTRUCTION

DESIGN SPEED = 55 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

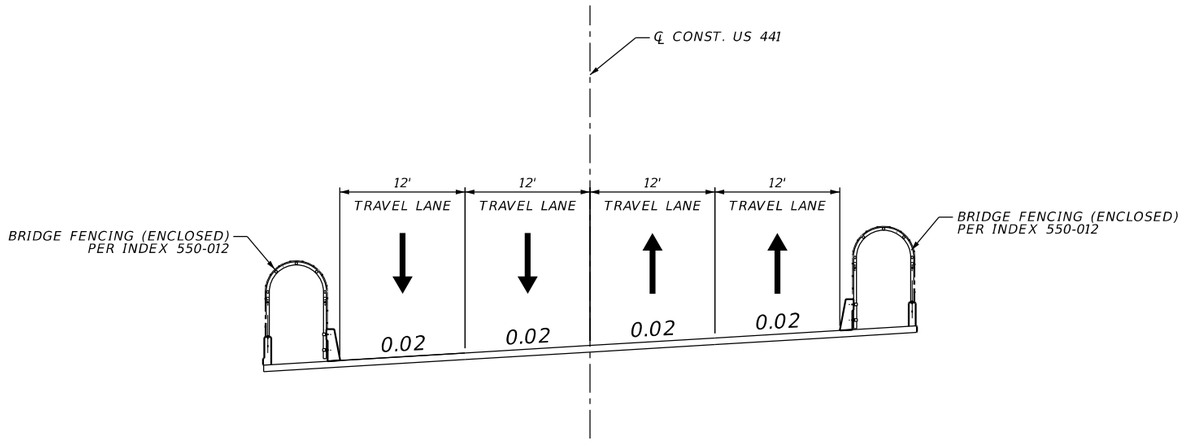
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



TYPICAL SECTION
NW 7TH AVE. (US 441)

STA. 4010+00 TO STA. 4032+94

RECONSTRUCTION

DESIGN SPEED = 45 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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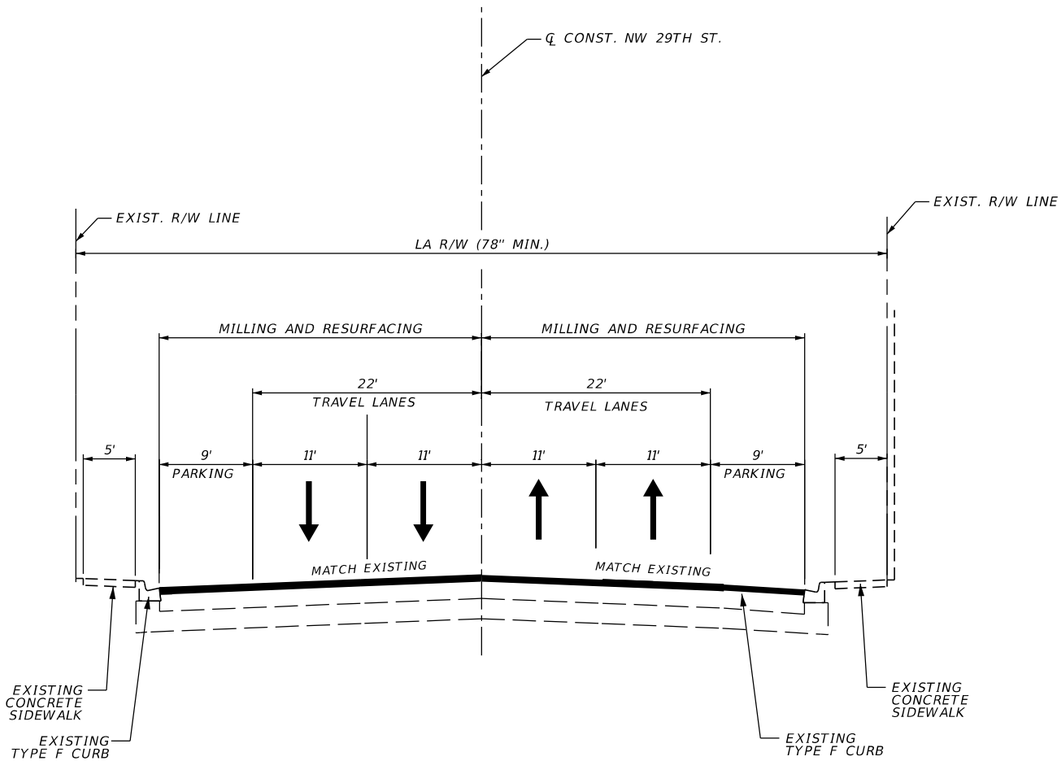

TYPICAL SECTION
NW 29TH ST.

STA. 4110+00 TO STA. 4119+29

MILLING & RESURFACING

DESIGN SPEED = 30 MPH

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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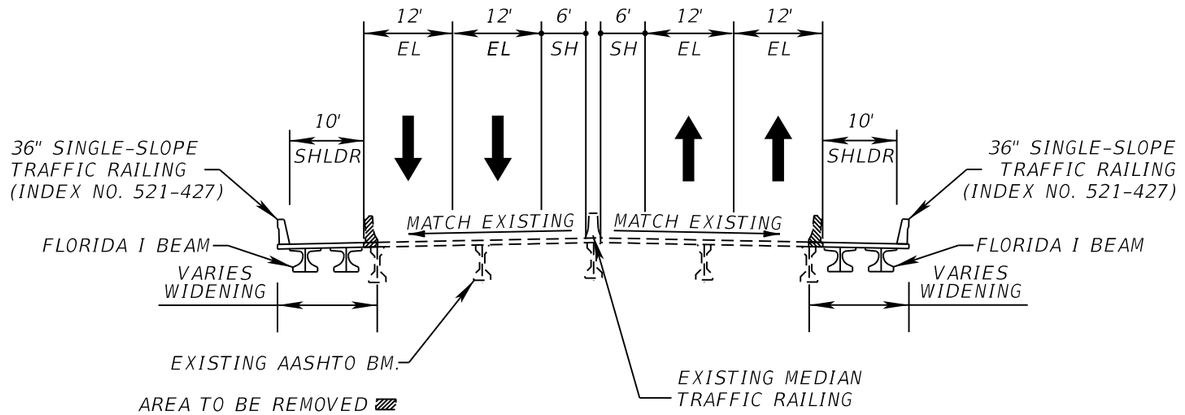

TYPICAL SECTION FOR SEGMENT 4
SR 9A/I-95 AT GOLDEN GLADES INTERCHANGE
STA. 1547+50 TO STA. 1588+95
DESIGN SPEED = 60 MPH

BRIDGE WIDENING

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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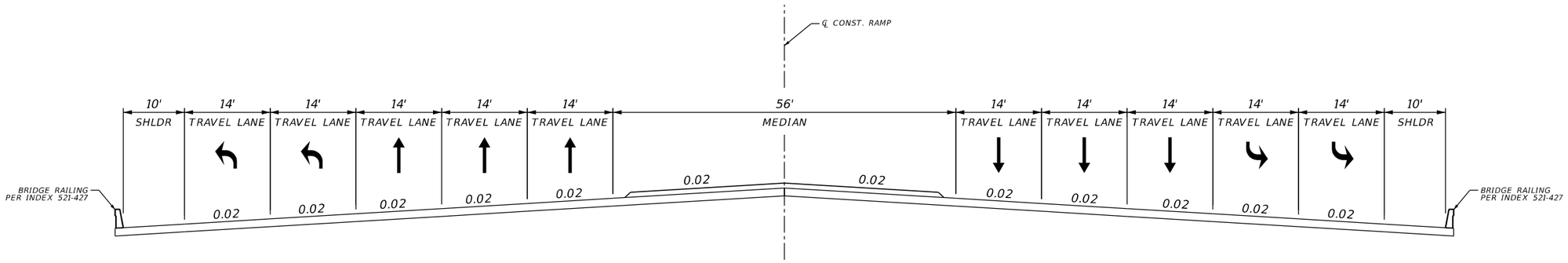

TYPICAL SECTION
SEGMENT 5
IVES DAIRY ROAD OVER I-95 (SR 9A)

RECONSTRUCTION

NOT TO SCALE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

TYPICAL SECTION

SHEET NO.

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BEGIN CORRIDOR WIDE PLANNING STUDY LIMITS
BEGIN SEGMENT 1
℄ CONST. SR 9A

836

0 200 1000
Feet

INTERSTATE 95

900

950

1000

OVERTOWN

END SEGMENT 1
℄ CONST. SR 91
STA. 1017+15.50
BEGIN SR-836/I-395
DESIGN PROJECT
FM#:
251688-1-52-01,
423126-1-52-01,
423126-2-52-01,
429300-2-52-01

SW 8TH ST/SW 7TH ST
PD&E STUDY AREA
(ONGOING)
FM#: 432639-6

970

1

DOWNTOWN MIAMI

INTERSTATE 395

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

LIMIT OF I-395/SR 836/I-95 PROJECT
FM#:
251688-1-52-01, 423126-1-52-01
423126-2-52-01, 429300-2-52-01

0 200 1000
Feet

MODEL CITY

END SEGMENT 2
BEGIN SEGMENT 3
℄ CONST. SR 91
STA. 1188+52.20

NW 20TH ST
NW 29TH ST
NW 32ND AVE
NW 7TH AVE/SR 7/US 441

1100
150
850
150
1150
5550
5050
2050
5150

WYNWOOD

END SR-836/I-395
DESIGN PROJECT
FM#: 251688-1-52-01,
423126-1-52-01,
423126-2-52-01,
429301072+17.49
BEGIN SEGMENT 2
℄ CONST. SR 91
STA. 1072+17.50

I-195 PLANNING STUDY
AREA (ONGOING)
FM#: 440228-1

NW 2ND AVE
NW 1ST AVE
N. MIAMI AVE

EDGEWATER

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

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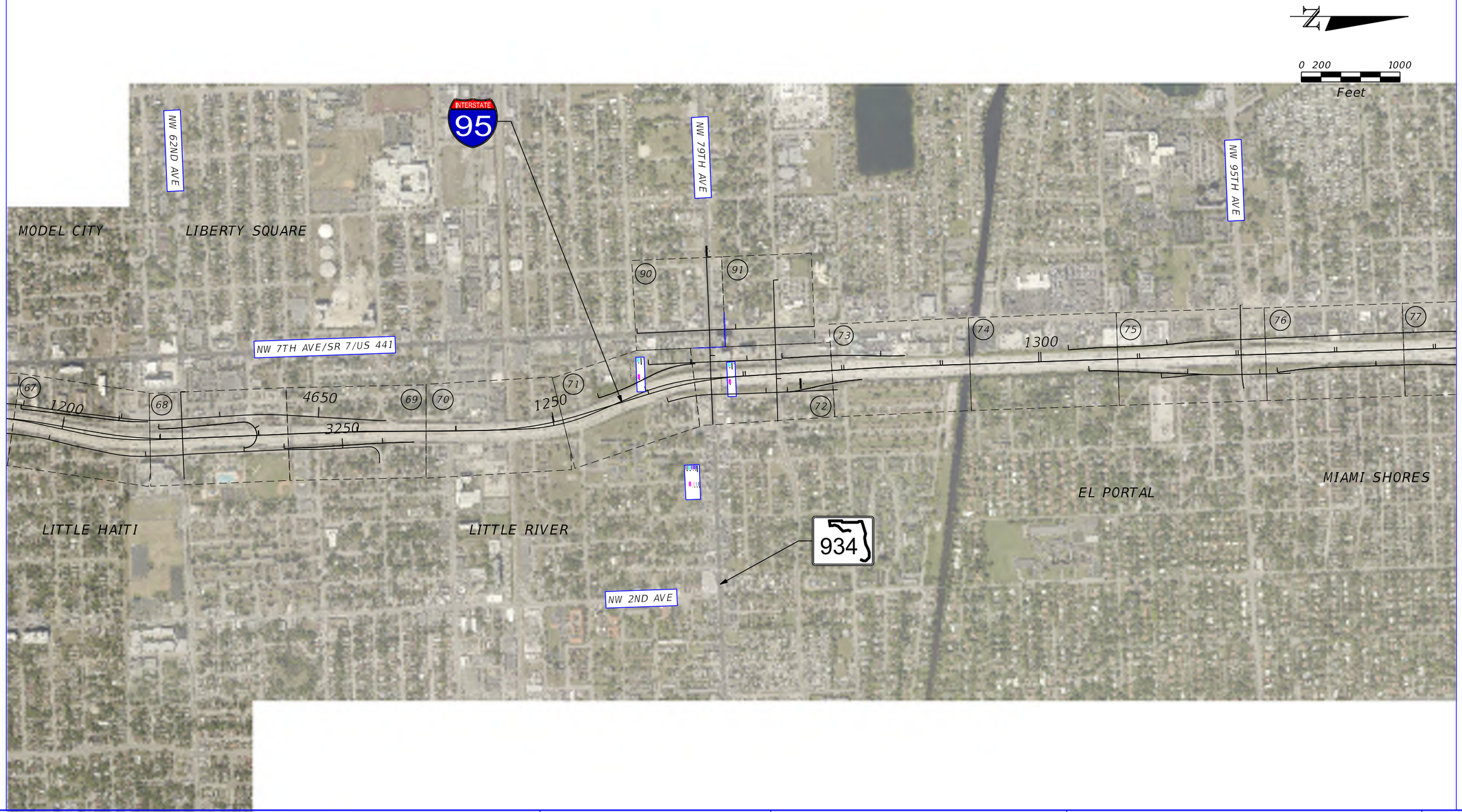

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

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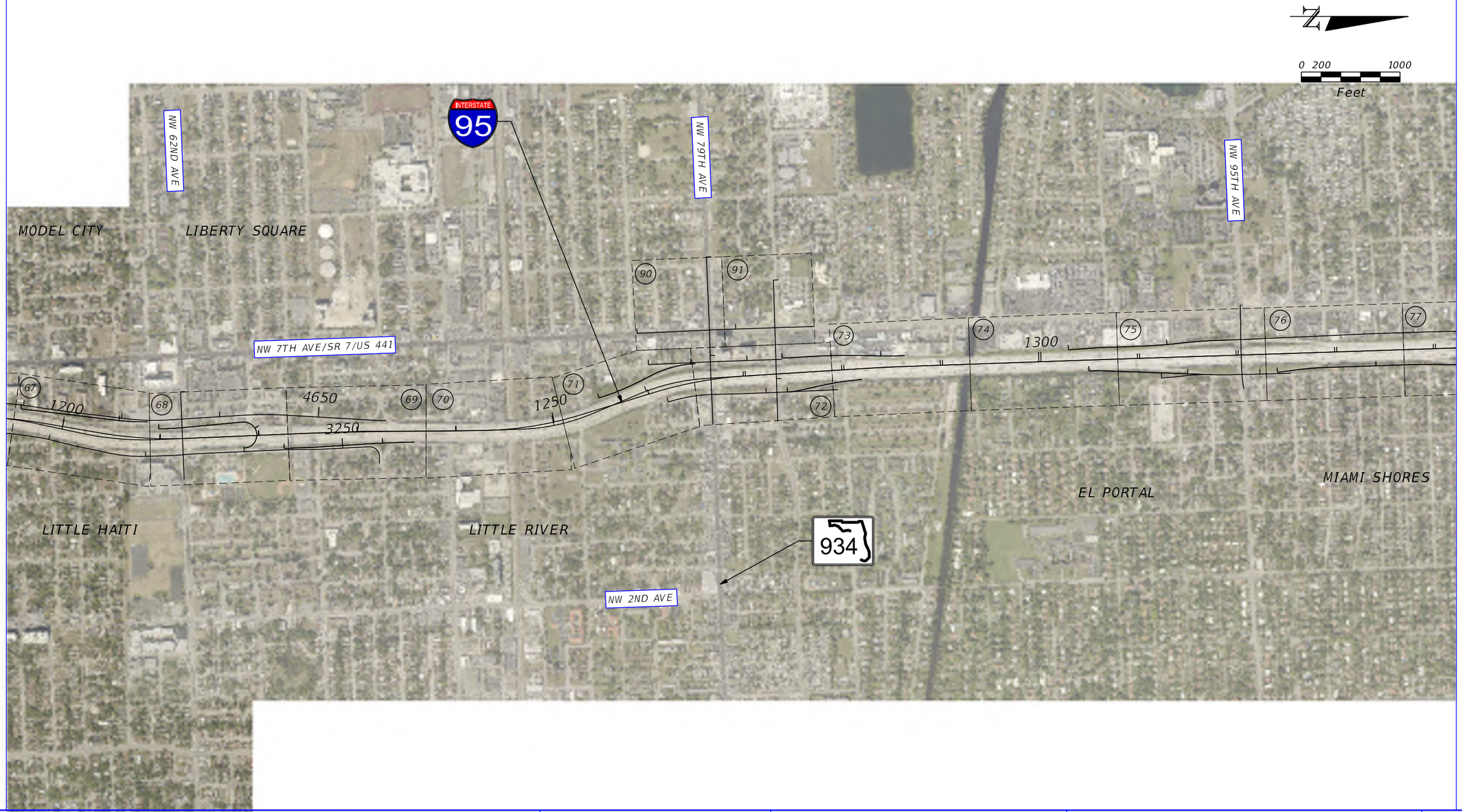

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

GOLDEN GLADES INTERCHANGE ENHANCEMENT PROJECTS
FM#:
428358-1-52-01, 428358-4-52-01, 428358-5-52-01,
428358-8-52, 437053-1-52-01, 437053-2-52-01,
437053-3-52-01, 437053-4-52-01 & 437053-5-52-01

0 200 1000
Feet

826

GOLDEN GLADES

FLORIDA'S TURNPIKE

NW 7TH AVE

N. MIAMI GARDENS DR.

1500

1550

1600

END SEGMENT 3
BEGIN SEGMENT 4
℄ CONST. SR 9
STA. 1510+00.00

END SEGMENT 4
BEGIN SEGMENT 5
℄ CONST. SR 9
STA. 1588+49.60

INTERSTATE 95

NW 2ND AVE

N. MIAMI AVE

NW 167TH ST

NE 3RD AVE

88 89 95 96 97 98 99 100 101

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

N

0 200 1000
Feet

860
1650
1700
1750
1800
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
INTERSTATE 95
NE 10TH AVE
NE 14TH AVE
NE 18TH AVE
IVES DAIRY ROAD
NE 215TH ST
MIAMI GARDENS DR.
MIAMI-DADE 854 COUNTY
NORTH MIAMI BEACH
IVES ESTATES

I-95 PD&E STUDY AREA BROWARD COUNTY
(ONGOING)
FM#: 436903-1

END SEGMENT 5
END CORRIDOR WIDE PLANNING STUDY LIMITS
℄ CONST. SR 9
STA. 1805+70.00

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REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

PROJECT LAYOUT

SHEET NO.

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CURVE DATA

CURVE NO.	P.C. STATION	P.I. STATION	P.T. STATION	Δ	D	T	L	R
SEGMENT 2								
CL 6TH AVE1-3	311+273.838 R1	311+303.838 R1	311+320.962 R1	90°00'00"	190°59'09"	30.0000	47.1200	30.0000
CL 6TH AVE1-10	312+658.399 R1	312+714.391 R1	312+770.208 R1	7°49'19"	6°59'45"	55.9900	111.8100	819.0000
CL 6TH AVE1-11	312+770.208 R1	312+826.265 R1	312+882.146 R1	7°49'52"	6°59'45"	56.0600	111.9400	819.0000
CL 6TH AVE2-1	321+000.000 R1	321+484.068 R1	321+963.775 R1	13°18'55"	1°22'54"	484.0700	963.7700	4147.1200
CL_29TH_ST-7	411+525.283 R1	411+603.691 R1	411+682.084 R1	2°00'00"	1°16'32"	78.4100	156.8000	4492.0000
CL_32ND_ST-3	421+301.323 R1	421+430.900 R1	421+560.475 R1	0°38'52"	0°15'00"	129.5800	259.1500	22918.0000
CL_441-3	401+042.583 R1	401+115.832 R1	401+189.038 R1	3°24'10"	2°19'24"	73.2500	146.4600	2466.0900
CL_441-6	401+304.143 R1	401+537.672 R1	401+749.460 R1	42°37'24"	9°34'17"	233.5300	445.3200	598.6100
CL_441-9	401+908.684 R1	402+207.301 R1	402+419.826 R1	74°16'51"	14°31'56"	298.6200	511.1400	394.2600
CL_441-12	402+672.295 R1	402+798.414 R1	402+921.658 R1	21°09'57"	8°29'16"	126.1200	249.3600	675.0300
CL_441-15	403+003.423 R1	403+072.175 R1	403+140.327 R1	13°06'17"	9°34'20"	68.7500	136.9000	598.5600
CL SR112-5	203+198.146 R1	203+690.436 R1	204+177.387 R1	14°36'26"	1°29'30"	492.2900	979.2400	3841.0000
CL SR112-8	204+376.940 R1	204+966.210 R1	205+553.139 R1	8°50'33"	0°45'06"	589.2700	1176.2000	7621.2500
CL SR112-11	205+983.408 R1	206+217.579 R1	206+451.529 R1	4°18'35"	0°55'14"	234.1700	468.1200	6223.3100
CL SR112E-5	211+923.096 R1	212+241.327 R1	212+556.937 R1	12°43'45"	2°00'30"	318.2300	633.8400	2853.0000
CL SR112E-8	213+067.524 R1	213+320.783 R1	213+571.168 R1	14°56'38"	2°58'02"	253.2600	503.6400	1931.0000
CL SR112E-11	213+736.504 R1	213+995.172 R1	214+253.537 R1	4°48'02"	0°55'42"	258.6700	517.0300	6171.0000
CL SR112E-14	214+499.501 R1	214+702.220 R1	214+904.778 R1	3°57'33"	0°58'37"	202.7200	405.2800	5865.0000
CL SR9-5	107+829.208 R2	108+167.886 R2	108+506.515 R2	1°41'34"	0°15'00"	338.6800	677.3100	22924.3000
CL SR9-6	108+506.515 R2	109+024.007 R2	109+541.324 R2	2°35'24"	0°15'01"	517.4900	1034.8100	22892.4900
CL SR9-9	110+288.037 R2	110+481.298 R2	110+674.549 R2	0°57'59"	0°15'00"	193.2600	386.5100	22918.3000
CL SR9-20	118+852.217 R2	119+314.514 R2	119+773.268 R2	12°16'51"	1°20'00"	462.3000	921.0500	4297.1200
CL RAMP 2A1-3	12+238.202 R1	12+447.456 R1	12+632.471 R1	47°29'21"	12°02'42"	209.2500	394.2700	475.6863
CL RAMP 2A1-6	12+719.692 R1	12+998.644 R1	13+224.146 R1	60°50'55"	12°03'44"	278.9500	504.4500	475.0000
CL RAMP 2A1-11	13+910.133 R1	14+215.184 R1	14+514.498 R1	19°13'37"	3°10'53"	305.0500	604.3600	1801.0000
CL RAMP 2A1-16	15+390.868 R1	15+531.026 R1	15+671.086 R1	3°41'57"	1°19'12"	140.1600	280.2200	4340.3948
CL RAMP 2A1-17	15+671.086 R1	15+733.407 R1	15+795.724 R1	1°03'17"	0°50'47"	62.3200	124.6400	6770.0000
CL RAMP 2A1-18	15+795.724 R1	15+987.518 R1	16+179.302 R1	0°57'15"	0°14'56"	191.7900	383.5800	23031.3000
CL RAMP 2A1-19	16+179.302 R1	16+467.258 R1	16+755.183 R1	1°25'57"	0°14'56"	287.9600	575.8800	23031.3000
CL RAMP 2A1-24	16+932.309 R1	17+059.997 R1	17+187.613 R1	3°19'39"	1°18'12"	127.6900	255.3000	4396.0000
CL RAMP 2A2-1	22+632.471 R2	22+917.053 R2	23+145.390 R2	61°46'50"	12°02'42"	284.5800	512.9200	475.6900
CL RAMP 2A2-4	23+782.028 R2	24+184.078 R2	107+358.064 R3	19°13'27"	2°24'48"	402.0500	796.5400	2374.0000
CL RAMP 2B-5	31+865.075 R1	32+466.877 R1	33+057.913 R1	18°45'19"	1°34'20"	601.8000	1192.8400	3644.0000
CL RAMP 2B-10	33+746.823 R1	34+084.022 R1	34+421.171 R1	1°41'36"	0°15'04"	337.2000	674.3500	22817.3000
CL RAMP 2B-11	34+421.171 R1	34+446.529 R1	15+795.724 R2	0°07'34"	0°14'56"	25.3600	50.7200	23019.3000
CL RAMP 2C-1	41+000.000 R1	41+075.992 R1	41+151.946 R1	3°08'55"	2°04'20"	75.9900	151.9500	2765.0000
CL RAMP 2C-2	41+151.946 R1	41+249.936 R1	41+347.843 R1	4°03'34"	2°04'20"	97.9900	195.9000	2765.0000
CL RAMP 2C-5	41+562.091 R1	41+955.096 R1	42+260.343 R1	65°35'06"	9°23'34"	393.0100	698.2500	610.0000
CL RAMP 2C-8	42+843.083 R1	43+026.943 R1	43+210.448 R1	6°10'15"	1°40'47"	183.8600	367.3700	3411.0000
CL RAMP 2C-9	43+210.448 R1	43+428.686 R1	107+358.064 R2	10°21'41"	2°22'49"	218.2400	435.2900	2407.0000
CL RAMP 2D-3	51+165.502 R1	51+496.350 R1	51+765.585 R1	60°00'14"	9°59'57"	330.8500	600.0800	573.0000
CL RAMP 2D-8	52+401.295 R1	52+711.427 R1	53+015.727 R1	19°13'37"	3°07'45"	310.1300	614.4300	1831.0000
CL RAMP 2E1-5	71+860.620 R1	72+571.838 R1	73+039.252 R1	80°46'42"	6°51'13"	711.2200	1178.6300	836.0000
CL RAMP 2E2-3	81+420.520 R1	81+495.070 R1	81+569.409 R1	7°26'38"	4°59'59"	74.5500	148.8900	1146.0000
CL RAMP 2E2-6	82+014.041 R1	82+205.907 R1	82+394.336 R1	18°46'04"	4°56'06"	191.8700	380.2900	1161.0000
CL RAMP 2E2-9	82+764.568 R1	83+038.968 R1	83+308.403 R1	18°51'42"	3°28'06"	274.4000	543.8300	1652.0000
CL RAMP 2E3-3	84+007.133 R1	84+152.228 R1	84+297.284 R1	2°16'29"	0°47'02"	145.0900	290.1500	7308.6700
CL RAMP 2E4-7	201+788.070 R1	202+034.037 R1	202+279.932 R1	2°24'14"	0°29'19"	245.9700	491.8600	11724.0000
CL RAMP 2E4-8	202+279.932 R1	202+484.410 R1	202+688.844 R1	2°02'42"	0°30'00"	204.4800	408.9100	11456.0000
CL RAMP 2E5-1	87+000.000 R1	87+182.491 R1	87+361.863 R1	18°19'54"	5°03'57"	182.4900	361.8600	1131.0000
CL RAMP 2E5-2	87+361.863 R1	87+772.654 R1	88+111.879 R1	58°04'17"	7°44'34"	410.7900	750.0200	740.0000
CL RAMP 2E6-1	91+000.000 R1	91+035.880 R1	91+071.716 R1	4°53'30"	6°49'15"	35.8800	71.7200	840.0000
CL RAMP 2E6-4	91+640.822 R1	91+657.949 R1	91+675.068 R1	2°44'26"	8°00'08"	17.1300	34.2500	716.0000
CL RAMP 2E6-5	91+675.068 R1	92+315.938 R1	92+720.549 R1	83°39'41"	8°00'08"	640.8700	1045.4800	716.0000
CL RAMP 2E6-8	93+654.146 R1	93+943.511 R1	94+232.505 R1	5°01'45"	0°52'10"	289.3700	578.3600	6589.0000
CL_RAMP_2E8-1	95+000.000 R1	95+197.246 R1	95+387.223 R1	26°53'33"	6°56'42"	197.2500	387.2200	825.0000
CL_RAMP_2E8-2	95+387.223 R1	95+756.937 R1	96+074.822 R1	52°10'51"	7°35'20"	369.7100	687.6000	755.0000
CL RAMP 2F1-5	311+561.420 R1	312+267.855 R1	312+697.211 R1	86°11'36"	7°35'20"	706.4300	1135.7900	755.0000
CL RAMP 2F1-8	313+062.908 R1	313+275.627 R1	313+487.908 R1	6°22'28"	1°30'00"	212.7200	425.0000	3820.0000
CL RAMP 2F1-11	313+690.773 R1	314+107.141 R1	314+522.620 R1	6°29'11"	0°46'47"	416.3700	831.8500	7348.0000
CL RAMP 2F2-3	322+138.808 R1	322+730.923 R1	323+143.061 R1	76°12'40"	7°35'20"	592.1100	1004.2500	755.0000

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

CURVE DATA

SHEET NO.

CURVE DATA

CURVE NO.	P.C. STATION	P.I. STATION	P.T. STATION	Δ	D	T	L	R
SEGMENT 2								
CL RAMP 2F2-4	323+143.061 R1	323+282.051 R1	323+418.259 R1	19°50'01"	7°12'25"	138.9900	275.2000	795.0000
CL RAMP 2F3-5	331+968.770 R1	332+862.945 R1	333+321.068 R1	95°39'20"	7°04'25"	894.1800	1352.3000	810.0000
CL RAMP 2G1-5	501+879.751 R1	502+083.010 R1	502+285.975 R1	5°19'25"	1°18'38"	203.2600	406.2200	4372.0000
CL RAMP 2G1-12	503+639.957 R1	503+726.527 R1	503+813.090 R1	1°11'39"	0°41'23"	86.5700	173.1300	8306.5000
CL RAMP 2G1-17	504+822.121 R1	505+264.708 R1	505+481.089 R1	97°48'49"	14°50'36"	442.5900	658.9700	386.0000
CL RAMP 2G1-20	505+747.679 R1	505+960.375 R1	506+172.922 R1	3°42'24"	0°52'18"	212.7000	425.2400	6573.0000
CL RAMP 2G1-21	506+172.922 R1	506+538.366 R1	506+903.059 R1	6°21'52"	0°52'18"	365.4400	730.1400	6573.0000
CL_RAMP_2G2-3	511+405.279 R1	511+525.183 R1	511+645.009 R1	3°34'54"	1°29'38"	119.9000	239.7300	3835.0000
CL_RAMP_2G2-6	511+853.955 R1	512+609.621 R1	513+017.233 R1	93°05'16"	8°00'08"	755.6700	1163.2800	716.0000
CL_RAMP_2G3-3	531+411.254 R1	532+222.439 R1	532+645.487 R1	94°47'39"	7°40'49"	811.1800	1234.2300	746.0000
CL_RAMP_2G3-6	533+273.860 R1	533+755.360 R1	534+236.366 R1	4°29'20"	0°27'59"	481.5000	962.5100	12285.3200
CL_RAMP_2H1-3	551+282.339 R1	551+623.797 R1	551+960.834 R1	15°57'31"	2°21'07"	341.4600	678.4900	2436.0000
CL_RAMP_2H1-6	552+136.856 R1	552+338.273 R1	552+539.472 R1	4°37'04"	1°08'49"	201.4200	402.6200	4995.5600
CL_RAMP_2H1-9	552+746.497 R1	553+349.162 R1	553+748.413 R1	80°10'31"	8°00'08"	602.6600	1001.9200	716.0000
CL_RAMP_2H1-12	554+091.051 R1	554+355.298 R1	554+618.054 R1	10°32'21"	1°59'59"	264.2500	527.0000	2865.0000
CL_RAMP_2H1-15	554+918.054 R1	555+134.978 R1	555+351.578 R1	5°25'07"	1°15'00"	216.9200	433.5200	4584.0000
CL_RAMP_2H2-3	561+096.884 R1	561+337.109 R1	561+566.411 R1	29°51'28"	6°21'33"	240.2200	469.5300	901.0000
CL_RAMP_2H2-4	561+566.411 R1	561+719.364 R1	561+865.937 R1	28°36'10"	9°32'57"	152.9500	299.5300	600.0000
CL_RAMP_2H2-7	562+159.309 R1	562+421.662 R1	562+664.305 R1	38°19'24"	7°35'20"	262.3500	505.0000	755.0000
CL_RAMP_2H2-10	562+883.417 R1	563+084.492 R1	563+284.530 R1	10°04'32"	2°30'43"	201.0700	401.1100	2281.0000
CL_RAMP_2H3-1	565+000.000 R1	565+293.861 R1	565+557.702 R1	44°37'42"	8°00'08"	293.8600	557.7000	716.0000
CL_RAMP_2H3-4	565+663.378 R1	565+811.442 R1	565+959.386 R1	4°00'00"	1°21'05"	148.0600	296.0100	4240.0000
SEGMENT 3								
CL SR9-20	118+852.217 R2	119+314.514 R2	119+773.268 R2	12°16'51"	1°20'00"	462.3000	921.0500	4297.1200
CL SR9-23	120+383.321 R2	120+827.421 R2	121+268.220 R2	12°05'50"	1°22'01"	444.1000	884.9000	4191.1200
CL SR9-26	122+224.826 R2	122+758.550 R2	123+292.191 R2	1°44'50"	0°09'49"	533.7200	1067.3600	35000.0000
CL SR9-29	124+267.074 R2	124+767.349 R2	125+260.915 R2	16°14'36"	1°38'04"	500.2800	993.8400	3505.6100
CL SR9-32	126+063.979 R2	126+531.829 R2	126+995.447 R2	13°20'32"	1°25'57"	467.8500	931.4700	4000.0000
CL SR9-35	128+120.156 R2	128+440.546 R2	128+760.895 R2	1°36'07"	0°15'00"	320.3900	640.7400	22918.0000
CL SR9-44	135+114.307 R2	135+360.668 R2	135+606.727 R2	4°55'30"	1°00'01"	246.3600	492.4200	5728.6500
CL SR9-47	135+902.663 R2	136+118.183 R2	136+333.500 R2	4°18'27"	0°59'59"	215.5200	430.8400	5730.6500
CL SR9-52	138+655.861 R2	138+923.857 R2	139+191.462 R2	5°21'18"	0°59'59"	268.0000	535.6000	5730.6500
CL SR9-55	139+483.431 R2	139+768.453 R2	140+053.006 R2	5°41'48"	1°00'01"	285.0200	569.5700	5728.6500
CL SR9-60	145+327.114 R2	145+551.195 R2	145+775.158 R2	3°12'41"	0°43'00"	224.0800	448.0400	7993.8100
CL SR9-63	145+954.688 R2	146+775.261 R2	147+594.042 R2	6°33'25"	0°24'00"	820.5700	1639.3500	14324.9700
CL SR9-66	149+069.342 R2	149+301.053 R2	149+532.736 R2	1°32'41"	0°20'00"	231.7100	463.3900	17187.7600
CL SR9-73	150+791.687 R2	150+897.605 R2	151+003.531 R2	0°42'22"	0°20'00"	105.9200	211.8300	17188.6600
CL SR9-74	151+003.521 R2	151+272.516 R2	151+541.467 R2	1°47'35"	0°20'00"	268.9900	537.9500	17188.6600
CL 6TH AVE2-1	321+000.000 R1	321+484.068 R1	321+963.775 R1	13°18'55"	1°22'54"	484.0700	963.7700	4147.1200
CL 6TH AVE2-6	322+573.015 R1	322+795.036 R1	323+014.303 R1	15°37'14"	3°32'23"	222.0200	441.2900	1618.6300
CL 6TH AVE2-17	325+266.945 R1	325+370.565 R1	325+428.324 R1	91°19'52"	56°35'39"	103.6200	161.3800	101.2400
CL_6TH_AVE3-1	331+000.000 R1	331+241.300 R1	331+479.366 R1	16°14'07"	3°23'13"	241.3000	479.3700	1691.7200
CL_6TH_AVE4-1	341+000.000 R1	341+105.051 R1	341+209.979 R1	4°48'45"	2°17'31"	105.0500	209.9800	2500.0000
CL_6TH_AVE4-2	341+209.979 R1	341+364.771 R1	341+518.946 R1	8°51'04"	2°51'53"	154.7900	308.9700	2000.0000
CL_6TH_AVE4-3	341+518.946 R1	341+640.357 R1	341+761.672 R1	3°56'47"	1°37'33"	121.4100	242.7300	3524.0000
CL_6TH_AVE5-9	346+544.450 R1	346+672.827 R1	346+800.851 R1	7°20'43"	2°51'53"	128.3800	256.4000	2000.0000
CL_6TH_AVE5-10	346+800.851 R1	347+078.990 R1	347+353.583 R1	15°50'05"	2°51'53"	278.1400	552.7300	2000.0000
CL_6TH_AVE5-11	347+353.583 R1	347+502.020 R1	347+649.914 R1	8°29'21"	2°51'53"	148.4400	296.3300	2000.0000
CL_6TH_AVE6-3	348+246.155 R2	348+462.694 R2	348+678.963 R2	4°57'35"	1°08'45"	216.5400	432.8100	5000.0000
CL_6TH_AVE6-12	349+695.096 R2	349+920.277 R2	350+145.261 R2	4°09'07"	0°55'20"	225.1800	450.1700	6212.2000
CL_6TH_CT-3	461+245.726 R1	461+698.202 R1	462+147.575 R1	11°37'09"	1°17'18"	452.4800	901.8500	4447.1200
CL_6TH_CT-4	462+147.575 R1	462+350.663 R1	462+553.702 R1	2°11'19"	0°32'20"	203.0900	406.1300	10631.8900
CL_6TH_CT-7	463+066.823 R1	463+267.667 R1	463+467.412 R1	10°22'46"	2°35'28"	200.8400	400.5900	2211.3100
CL_6TH_CT-12	464+225.645 R1	464+451.557 R1	464+676.934 R1	6°49'50"	1°30'49"	225.9100	451.2900	3785.4700
CL_6TH_CT-15	465+635.564 R1	465+662.200 R1	465+688.835 R1	0°05'13"	0°09'47"	26.6400	53.2700	35111.0000
CL_6TH_CT2-5	602+339.535 R1	602+347.290 R1	602+355.045 R1	0°11'12"	1°12'13"	7.7500	15.5100	4760.1700
CL_RAMP_3A-3	571+960.820 R1	572+128.899 R1	572+296.469 R1	7°43'32"	2°18'06"	168.0800	335.6500	2489.2900
CL_RAMP_3B-1	581+000.000 R1	581+111.706 R1	581+223.267 R1	5°04'27"	2°16'22"	111.7100	223.2700	2521.0600
CL_RAMP_3B-4	581+853.284 R1	587+434.31 R1	582+273.742 R1	182°42'24"	43°27'15"	0.0000	420.4600	131.8500
CL_RAMP_3C-7	591+877.457 R1	592+098.853 R1	592+320.155 R1	2°53'30"	0°39'11"	221.4000	442.7000	8771.8300
CL_RAMP_3D-1	611+000.000 R1	611+202.037 R1	611+403.145 R1	9°30'49"	2°21'36"	202.0400	403.1500	2427.9300

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REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

CURVE DATA

SHEET NO.

CURVE DATA

CURVE NO.	P.C. STATION	P.I. STATION	P.T. STATION	Δ	D	T	L	R
SEGMENT 3								
CL_RAMP_3D-4	611+599.583 R1	611+825.079 R1	612+044.011 R1	23°54'35"	5°22'48"	225.5000	444.4300	1065.0000
CL_RAMP_3E-1	621+000.000 R1	621+102.642 R1	621+205.252 R1	2°28'36"	1°12'24"	102.6400	205.2500	4748.1700
CL_RAMP_3E-2	621+205.252 R1	621+522.448 R1	621+839.157 R1	5°29'50"	0°52'02"	317.2000	633.9100	6607.0200
CL_RAMP_3E-5	622+104.974 R1	622+175.575 R1	622+246.176 R1	0°21'05"	0°14'56"	70.6000	141.2000	23029.0000
CL_RAMP_3F-1	631+000.000 R1	631+065.620 R1	631+130.906 R1	10°00'02"	7°38'22"	65.6200	130.9100	750.0000
CL_RAMP_3F-4	631+368.331 R1	631+569.107 R1	631+769.028 R1	9°09'26"	2°17'07"	200.7800	400.7000	2507.1000
CL_RAMP_3G-5	641+715.059 R1	641+916.915 R1	642+118.553 R1	4°37'25"	1°08'45"	201.8600	403.4900	5000.0000
CL_RAMP_3G-6	642+118.553 R1	642+309.863 R1	642+500.986 R1	4°22'56"	1°08'45"	191.3100	382.4300	5000.0000
CL_RAMP_3G-19	645+931.478 R1	646+121.348 R1	646+310.961 R1	5°09'22"	1°21'31"	189.8700	379.4800	4216.8700
CL_RAMP_3G-22	646+608.806 R1	646+830.155 R1	647+051.296 R1	4°18'27"	0°58'25"	221.3500	442.4900	5885.6500
CL_RAMP_3G-25	647+988.921 R1	648+269.289 R1	648+549.428 R1	4°00'52"	0°42'58"	280.3700	560.5100	8000.0000
CL_RAMP_3G-28	649+565.775 R1	649+835.395 R1	650+101.530 R1	15°56'46"	2°58'35"	269.6200	535.7500	1925.0000
CL_RAMP_3G-31	650+482.033 R1	650+733.744 R1	650+983.524 R1	12°17'18"	2°27'01"	251.7100	501.4900	2338.2700
CL_RAMP_3G-34	651+397.732 R1	651+637.580 R1	651+877.155 R1	4°43'29"	0°59'08"	239.8500	479.4200	5813.8800
CL_RAMP_3G-37	652+031.605 R1	652+291.579 R1	652+550.434 R1	9°12'25"	1°46'28"	259.9700	518.8300	3228.7300
CL_RAMP_3G-40	652+794.539 R1	653+108.009 R1	653+421.158 R1	4°28'56"	0°42'55"	313.4700	626.6200	8010.0000
CL_RAMP_3G2-1	654+701.770 R1	654+910.250 R1	655+118.669 R1	2°23'11"	0°34'21"	208.4800	416.9000	10010.0000
CL_RAMP_3G2-2	655+118.669 R1	655+553.385 R1	655+987.425 R1	5°32'13"	0°38'14"	434.7200	868.7600	8990.0000
CL_RAMP_3G2-3	655+987.425 R1	656+204.976 R1	656+422.502 R1	1°28'09"	0°20'16"	217.5500	435.0800	16968.0000
CL_RAMP_3G2-6	656+837.328 R1	657+464.418 R1	658+090.695 R1	5°02'52"	0°24'10"	627.0900	1253.3700	14226.2500
CL_RAMP_3G2-11	659+570.213 R1	659+890.044 R1	660+209.781 R1	2°24'13"	0°22'33"	319.8300	639.5700	15245.1200
CL_RAMP_3G2-16	660+894.184 R1	661+095.538 R1	661+296.524 R1	5°59'42"	1°29'24"	201.3500	402.3400	3845.2300
CL_RAMP_3G2-19	661+308.572 R1	661+321.007 R1	661+332.661 R1	35°03'21"	145°31'20"	12.4400	24.0900	39.3700
CL_RAMP_3G3-7	461+703.147 R1	461+760.285 R1	461+817.151 R1	9°39'45"	8°28'33"	57.1400	114.0000	676.0000
CL_RAMP_3G4-1	801+000.000 R1	801+137.030 R1	801+274.058 R1	0°31'24"	0°11'28"	137.0300	274.0600	30000.0000
CL_RAMP_3G4-4	801+559.143 R1	801+653.943 R1	801+748.743 R1	0°21'44"	0°11'28"	94.8000	189.6000	30000.0000
CL_RAMP_3G4-9	802+213.882 R1	802+299.359 R1	802+384.832 R1	0°53'32"	0°31'19"	85.4800	170.9500	10978.0000
CL_RAMP_3G4-16	803+463.040 R1	803+704.026 R1	803+944.254 R1	7°52'07"	1°38'07"	240.9900	481.2100	3504.0000
CL_RAMP_3H-5	672+231.987 R1	672+242.658 R1	672+253.329 R1	0°20'49"	1°37'33"	10.6700	21.3400	3524.0000
CL_RAMP_3I-1	681+000.000 R1	681+047.541 R1	681+095.073 R1	1°53'08"	1°59'00"	47.5400	95.0700	2888.7800
CL_RAMP_3I-2	681+095.073 R1	681+296.385 R1	681+497.211 R1	6°53'57"	1°42'56"	201.3100	402.1400	3339.6000
CL_RAMP_3I-5	682+323.753 R1	682+523.130 R1	682+722.402 R1	3°13'32"	0°48'33"	199.3800	398.6500	7081.1500
CL_RAMP_3I-6	682+722.402 R1	682+873.183 R1	683+023.928 R1	2°08'45"	0°42'42"	150.7800	301.5300	8051.4700
CL_RAMP_3I-7	683+023.928 R1	683+140.870 R1	683+257.796 R1	1°39'51"	0°42'42"	116.9400	233.8700	8051.4700
CL_RAMP_3I-10	683+393.782 R1	683+508.969 R1	683+624.154 R1	0°39'46"	0°17'16"	115.1900	230.3700	19916.4200
CL_RAMP_3I-13	684+029.609 R1	684+129.121 R1	684+228.631 R1	0°34'22"	0°17'16"	99.5100	199.0200	19909.4200
CL_RAMP_3I-16	684+524.567 R1	684+721.809 R1	684+918.865 R1	4°18'27"	1°05'33"	197.2400	394.3000	5244.6400
CL_RAMP_3J-5	691+843.250 R1	692+044.249 R1	692+244.429 R1	8°57'01"	2°13'52"	201.0000	401.1800	2568.1800
CL_RAMP_3J-8	692+755.720 R1	692+956.563 R1	693+157.217 R1	4°18'27"	1°04'22"	200.8400	401.5000	5340.3900
CL_RAMP_3K-7	703+131.554 R1	703+235.753 R1	703+339.928 R1	2°08'12"	1°01'31"	104.2000	208.3700	5587.6500
CL_RAMP_3K-8	703+339.928 R1	703+481.415 R1	703+622.380 R1	8°31'52"	3°01'13"	141.4900	282.4500	1896.9900
CL_RAMP_3K-9	703+622.380 R1	703+859.377 R1	704+095.431 R1	8°51'05"	1°52'16"	237.0000	473.0500	3062.0500
CL_RAMP_3L-1	711+000.000 R1	711+212.191 R1	711+424.293 R1	2°51'36"	0°40'27"	212.1900	424.2900	8500.0000
CL_RAMP_3L-2	711+424.293 R1	711+685.476 R1	711+946.494 R1	3°31'12"	0°40'27"	261.1800	522.2000	8500.0000
CL_RAMP_3L-5	712+406.505 R1	713+079.095 R1	713+482.838 R1	86°58'51"	8°04'52"	672.5900	1076.3300	709.0000
CL_RAMP_3M-3	721+517.119 R1	721+901.572 R1	722+284.864 R1	7°43'02"	1°00'19"	384.4500	767.7400	5700.0000
CL_RAMP_3M-4	722+284.864 R1	722+916.295 R1	723+392.695 R1	68°41'41"	6°12'03"	631.4300	1107.8300	924.0000
CL_RAMP_3N-1	731+000.000 R1	731+265.707 R1	731+528.366 R1	15°01'26"	2°50'36"	265.7100	528.3700	2015.0000
CL_RAMP_3N-4	731+699.636 R1	731+860.111 R1	732+018.726 R1	15°06'12"	4°44'00"	160.4800	319.0900	1210.4900
CL_RAMP_3O-1	741+000.000 R1	741+046.832 R1	741+093.662 R1	0°57'32"	1°01'26"	46.8300	93.6600	5596.6500
CL_RAMP_3O-4	741+455.711 R1	741+806.146 R1	742+155.362 R1	8°16'33"	1°10'58"	350.4300	699.6500	4843.8600
CL_RAMP_3O-5	742+155.362 R1	742+355.842 R1	742+556.234 R1	2°55'47"	0°43'51"	200.4800	400.8700	7840.0800
CL_RAMP_3P-1	751+000.000 R1	751+570.147 R1	751+895.501 R1	90°00'53"	10°03'07"	570.1500	895.5000	570.0000
CL_RAMP_3Q-1	761+000.000 R1	762+001.092 R1	762+519.447 R1	95°08'43"	6°15'43"	1001.0900	1519.4500	915.0000
CL_RAMP_3Q-4	763+110.940 R1	763+295.388 R1	763+479.635 R1	4°37'50"	1°15'21"	184.4500	368.6900	4562.0800
CL_RAMP_3R1-1	771+000.000 R1	771+241.663 R1	771+483.052 R1	4°43'29"	0°58'41"	241.6600	483.0500	5857.8800
CL_RAMP_3R1-4	771+637.501 R1	771+839.735 R1	772+041.739 R1	4°43'38"	1°10'10"	202.2300	404.2400	4899.5400
CL_RAMP_3R1-7	772+401.163 R1	772+504.045 R1	772+606.810 R1	4°44'09"	2°18'10"	102.8800	205.6500	2488.0000
CL_RAMP_3R2-1	781+000.000 R1	781+033.996 R1	781+067.988 R1	1°33'29"	2°17'31"	34.0000	67.9900	2500.0000
CL_RAMP_3R2-4	781+159.015 R1	781+501.099 R1	781+841.348 R1	10°16'29"	1°30'21"	342.0800	682.3300	3805.0000

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CURVE DATA

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CURVE DATA

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CL_RAMP_3S-3	791+315.248 R1	791+517.039 R1	791+718.516 R1	5°32'18"	1°22'24"	201.7900	403.2700	4172.0000
CL_RAMP_3S-4	791+718.516 R1	791+744.343 R1	791+770.169 R1	0°20'57"	0°40'34"	25.8300	51.6500	8473.4000
CL_RAMP_3S-5	791+770.169 R1	791+866.091 R1	791+961.946 R1	3°42'46"	1°56'10"	95.9200	191.7800	2959.4600
CL_RAMP_3T1-3	811+157.348 R1	811+359.132 R1	811+560.789 R1	3°30'52"	0°52'16"	201.7800	403.4400	6577.0500
SEGMENT 4								
CL SR9-74	151+003.521 R2	151+272.516 R2	151+541.467 R2	1°47'35"	0°20'00"	268.9900	537.9500	17188.6600
CL SR9-79	152+445.655 R2	152+797.007 R2	153+147.125 R2	8°19'16"	1°11'10"	351.3500	701.4700	4830.0000
CL SR9-82	153+713.076 R2	153+821.069 R2	153+928.916 R2	5°09'40"	2°23'28"	107.9900	215.8400	2396.1300
CL SR9-83	153+928.916 R2	154+081.592 R2	154+233.685 R2	8°40'13"	2°50'42"	152.6800	304.7700	2014.0000
CL SR9-84	154+233.685 R2	155+322.449 R2	156+292.557 R2	46°04'48"	2°14'17"	1088.7600	2058.8700	2560.0000
CL_RAMP_4A-1	821+000.000 R1	821+020.927 R1	821+041.854 R1	0°14'38"	0°34'58"	20.9300	41.8500	9831.7300
CL_RAMP_4A-2	821+041.854 R1	821+136.888 R1	821+231.918 R1	0°44'21"	0°23'20"	95.0300	190.0600	14733.4800
CL_RAMP_4A-3	821+231.918 R1	821+624.000 R1	822+015.897 R1	3°02'55"	0°23'20"	392.0800	783.9800	14733.4800
CL_RAMP_4A-4	822+015.897 R1	822+106.106 R1	822+196.309 R1	1°03'10"	0°35'01"	90.2100	180.4100	9819.7300
CL_RAMP_4A-5	822+196.309 R1	822+533.991 R1	822+871.023 R1	6°09'07"	0°54'42"	337.6800	674.7100	6283.9000
CL_RAMP_4B-1	831+000.000 R1	831+613.963 R1	832+226.388 R1	7°01'36"	0°34'23"	613.9600	1226.3900	10000.0000
CL_RAMP_4B-2	832+226.388 R1	832+364.635 R1	832+502.870 R1	1°19'12"	0°28'39"	138.2500	276.4800	12000.0000
CL_RAMP_4B-3	832+502.870 R1	832+616.790 R1	832+730.649 R1	3°15'46"	1°25'57"	113.9200	227.7800	4000.0000
CL_RAMP_4C-1	841+000.000 R1	841+119.180 R1	841+238.349 R1	1°23'08"	0°34'53"	119.1800	238.3500	9855.7300
CL_RAMP_4D1-1	851+000.000 R1	851+467.439 R1	851+934.640 R1	3°10'12"	0°20'21"	467.4400	934.6400	16893.4500
CL_RAMP_4D1-4	852+262.897 R1	852+392.775 R1	852+521.958 R1	10°15'30"	3°57'35"	129.8800	259.0600	1446.9300
CL_RAMP_4D2-1	861+000.000 R1	861+159.647 R1	861+317.995 R1	12°39'17"	3°58'46"	159.6500	317.9900	1439.7600
CL_RAMP_4E-3	871+101.307 R1	871+358.662 R1	871+603.705 R1	30°37'22"	6°05'43"	257.3500	502.4000	940.0000
CL_RAMP_4E-6	871+807.277 R1	873+764.498 R1	873+311.321 R1	146°33'24"	9°44'39"	1957.2200	1504.0400	588.0000
CL_RAMP_4E-9	873+440.422 R1	873+625.884 R1	873+809.771 R1	12°55'39"	3°30'00"	185.4600	369.3500	1637.0000
CL_RAMP_4F1-3	881+402.625 R1	882+143.806 R1	882+448.557 R1	104°35'08"	9°59'57"	741.1800	1045.9300	573.0000
CL_RAMP_4F2-3	892+022.264 R1	892+121.304 R1	892+220.324 R1	1°58'22"	0°59'46"	99.0400	198.0600	5752.0000
CL_RAMP_4G-3	901+379.792 R1	901+514.084 R1	901+620.360 R1	63°26'18"	26°22'13"	134.2900	240.5700	217.2700
CL_RAMP_4H-1	911+000.000 R1	911+133.658 R1	911+266.872 R1	8°04'54"	3°01'42"	133.6600	266.8700	1892.0000
CL_RAMP_4I-3	921+299.396 R1	921+544.356 R1	921+788.518 R1	8°00'25"	1°38'13"	244.9600	489.1200	3500.0000
SEGMENT 5								
CL_IVES_DAIRY-3	521+446.871 R1	521+874.086 R1	522+295.063 R1	16°56'41"	1°59'52"	427.2100	848.1900	2868.0000
CL_IVES_DAIRY-6	523+310.102 R1	523+562.927 R1	523+809.184 R1	22°35'31"	4°31'36"	252.8300	499.0800	1265.7200
CL_MGD-3	511+194.304 R1	511+468.941 R1	511+714.489 R1	45°26'01"	8°44'03"	274.6400	520.1900	656.0000
CL_MGD-6	511+985.233 R1	512+335.757 R1	512+648.727 R1	45°41'30"	6°53'12"	350.5200	663.4900	832.0000
CL_MGD-11	514+849.614 R1	514+919.944 R1	514+990.188 R1	4°55'23"	3°30'08"	70.3300	140.5700	1636.0000
CL_MGD-14	515+134.847 R1	515+210.121 R1	515+285.293 R1	5°11'34"	3°27'06"	75.2700	150.4500	1660.0000
CL_MGD-17	515+398.922 R1	515+642.909 R1	515+863.259 R1	43°28'18"	9°21'43"	243.9900	464.3400	612.0000
CL SR9-91	160+601.755 R2	161+157.164 R2	161+702.734 R2	18°39'47"	1°41'43"	555.4100	1100.9800	3380.0000
CL SR9-92	161+702.734 R2	161+788.685 R2	161+874.599 R2	2°54'48"	1°41'43"	85.9500	171.8600	3380.0000
CL SR9-95	162+412.202 R2	162+974.069 R2	163+522.635 R2	21°34'02"	1°56'32"	561.8700	1110.4300	2950.0000
CL SR9-98	164+785.862 R2	164+840.517 R2	164+895.156 R2	2°27'33"	2°15'00"	54.6600	109.2900	2546.4800
CL SR9-99	164+895.156 R2	165+361.981 R2	165+818.554 R2	20°46'35"	2°15'00"	466.8300	923.4000	2546.4800
CL SR9-104	166+314.767 R2	166+819.507 R2	167+310.440 R2	23°10'51"	2°19'41"	504.7400	995.6700	2461.0000
CL SR9-107	169+908.351 R2	170+984.195 R2	172+056.689 R2	7°49'43"	0°21'52"	1075.8400	2148.3400	15723.0000
CL SR9-110	173+863.943 R2	175+459.545 R2	176+774.164 R2	58°22'45"	2°00'22"	1595.6000	2910.2200	2856.2200
CL SR9-115	180+355.241 R2	180+460.959 R2	180+566.664 R2	1°33'00"	0°43'59"	105.7200	211.4200	7814.9900
CL_RAMP_5A-3	931+391.224 R1	931+429.371 R1	931+466.381 R1	24°11'32"	32°11'19"	38.1500	75.1600	178.0000
CL_RAMP_5A-4	931+466.381 R1	931+650.072 R1	931+741.154 R1	97°10'51"	35°22'04"	183.6900	274.7700	162.0000
CL_RAMP_5A-9	932+260.797 R1	932+547.143 R1	932+516.857 R1	139°43'30"	54°34'03"	286.3500	256.0600	105.0000
CL_RAMP_5A-12	932+633.258 R1	932+673.311 R1	932+711.401 R1	30°59'25"	39°39'31"	40.0500	78.1400	144.4700
CL_RAMP_5A-17	932+950.718 R1	933+273.532 R1	933+595.128 R1	8°37'07"	1°20'15"	322.8100	644.4100	4284.0000
CL_RAMP_5B1-3	941+109.829 R1	941+185.470 R1	941+237.783 R1	76°44'58"	59°58'56"	75.6400	127.9500	95.5200
CL_RAMP_5B1-10	941+969.468 R1	942+092.320 R1	942+208.381 R1	32°54'20"	13°46'23"	122.8500	238.9100	416.0000
CL_RAMP_5B1-13	942+444.707 R1	942+564.650 R1	942+684.380 R1	5°55'22"	2°28'16"	119.9400	239.6700	2318.5000
CL_RAMP_5B1-14	942+684.380 R1	943+160.155 R1	943+622.902 R1	23°11'35"	2°28'16"	475.7800	938.5200	2318.5200
CL_RAMP_5B2-3	951+343.716 R1	952+046.157 R1	952+119.694 R1	127°01'45"	16°22'13"	702.4400	775.9800	350.0000
CL_RAMP_5B2-6	952+387.664 R1	952+654.927 R1	952+917.516 R1	18°32'42"	3°30'00"	267.2600	529.8500	1637.0000
CL_RAMP_5B3-5	955+714.894 R1	955+860.288 R1	956+005.388 R1	6°19'00"	2°10'28"	145.3900	290.4900	2635.0000
CL_RAMP_5C1-1	961+000.000 R1	961+092.005 R1	961+183.981 R1	2°32'33"	1°22'55"	92.0100	183.9800	4146.0000
CL_RAMP_5C1-4	961+399.570 R1	961+467.731 R1	961+534.908 R1	16°51'26"	12°27'20"	68.1600	135.3400	460.0000
CL_RAMP_5C1-5	961+534.908 R1	961+699.612 R1	961+767.905 R1	104°17'41"	44°45'44"	164.7000	233.0000	128.0000

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

CURVE DATA

SHEET NO.

CURVE DATA

CURVE NO.	P.C. STATION	P.I. STATION	P.T. STATION	Δ	D	T	L	R
SEGMENT 5								
CL_RAMP_5C2-1	963+000.000 R1	963+119.912 R1	963+198.314 R1	81°09'40"	40°55'32"	119.9100	198.3100	140.0000
CL_RAMP_5C2-6	963+671.249 R1	963+888.445 R1	964+104.757 R1	8°57'08"	2°03'54"	217.2000	433.5100	2774.5300
CL_RAMP_5D1-1	971+000.000 R1	971+400.827 R1	971+795.643 R1	17°10'30"	2°09'31"	400.8300	795.6400	2654.2800
CL_RAMP_5D1-2	971+795.643 R1	972+135.652 R1	972+470.061 R1	17°59'49"	2°40'07"	340.0100	674.4200	2147.0900
CL_RAMP_5D1-5	972+671.007 R1	972+776.348 R1	972+833.288 R1	92°58'49"	57°17'45"	105.3400	162.2800	100.0000
CL_RAMP_5D2-3	975+005.284 R1	975+197.725 R1	975+277.895 R1	104°07'48"	38°11'50"	192.4400	272.6100	150.0000
CL_RAMP_5E1-3	982+173.141 R1	982+840.783 R1	983+462.737 R1	36°35'19"	2°50'14"	667.6400	1289.6000	2019.4400
CL_RAMP_5E1-6	983+598.768 R1	983+750.720 R1	983+829.285 R1	95°12'57"	41°18'19"	151.9500	230.5200	138.7100
CL_RAMP_5E2-3	985+161.409 R1	985+357.754 R1	985+436.935 R1	105°14'34"	38°11'50"	196.3400	275.5300	150.0000
CL_RAMP_5F1-1	991+000.000 R1	991+137.531 R1	991+241.494 R1	68°29'52"	28°21'51"	137.5300	241.4900	202.0000
CL_RAMP_5F1-4	992+462.230 R1	992+731.470 R1	993+000.637 R1	2°18'13"	0°25'40"	269.2400	538.4100	13391.2200
CL_RAMP_5F2-1	995+000.000 R1	995+175.283 R1	995+210.469 R1	120°35'24"	57°17'45"	175.2800	210.4700	100.0000

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CURVE DATA

SHEET NO.

SEGMENT 1 PLAN SHEETS

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

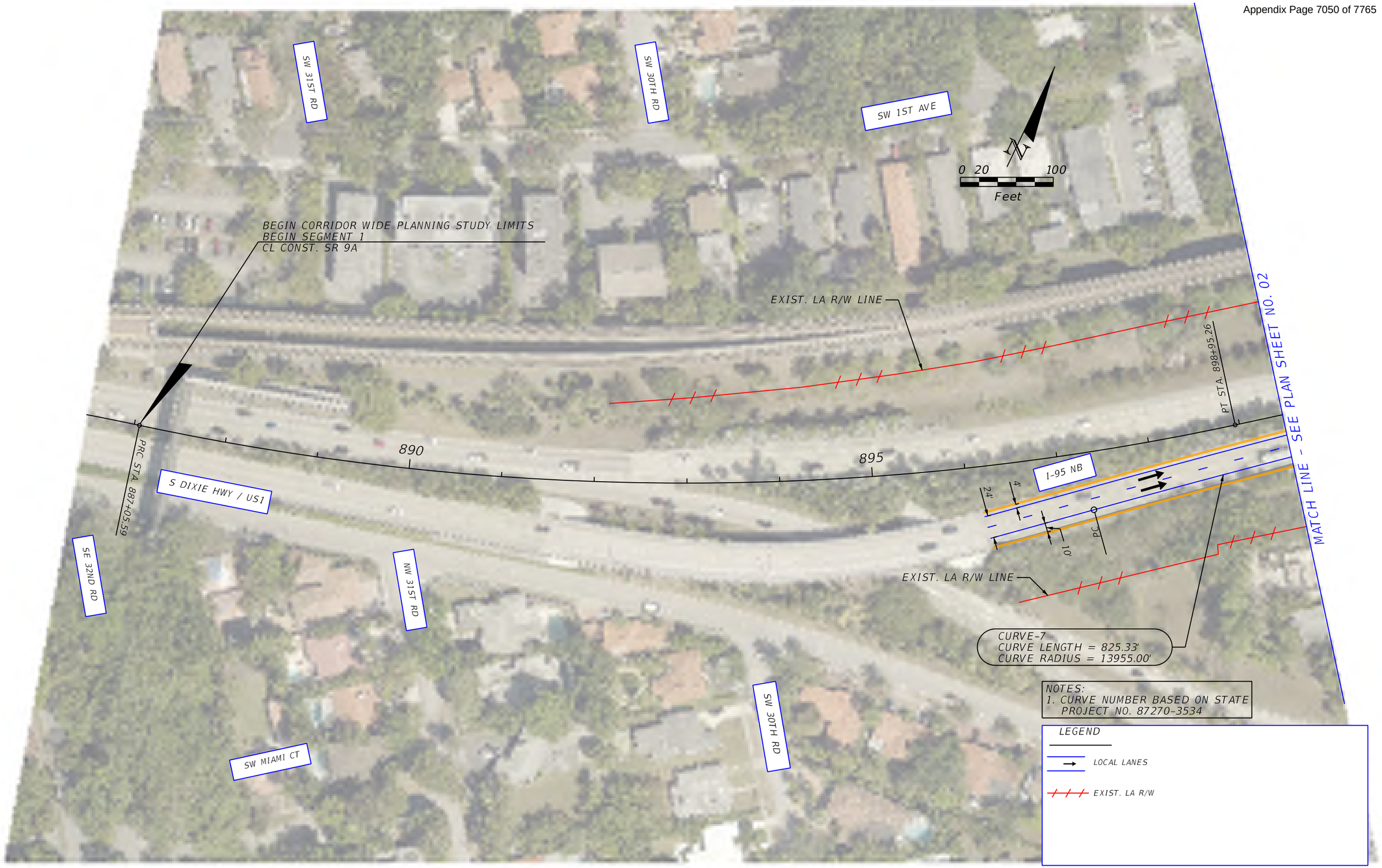
Kimley-Horn and Associates, Inc.
Certificate Of Authorization No. 696
Ramon F. Breton, P.E.
P.E. License No. 53139
189 South Orange Avenue, Suite 1000
Orlando, Florida 32801

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9A	MIAMI-DADE	414964-6-22-01

SEGMENT 1
PLAN SHEET

SHEET NO.



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STATE OF FLORIDA
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ROADWAY PLAN

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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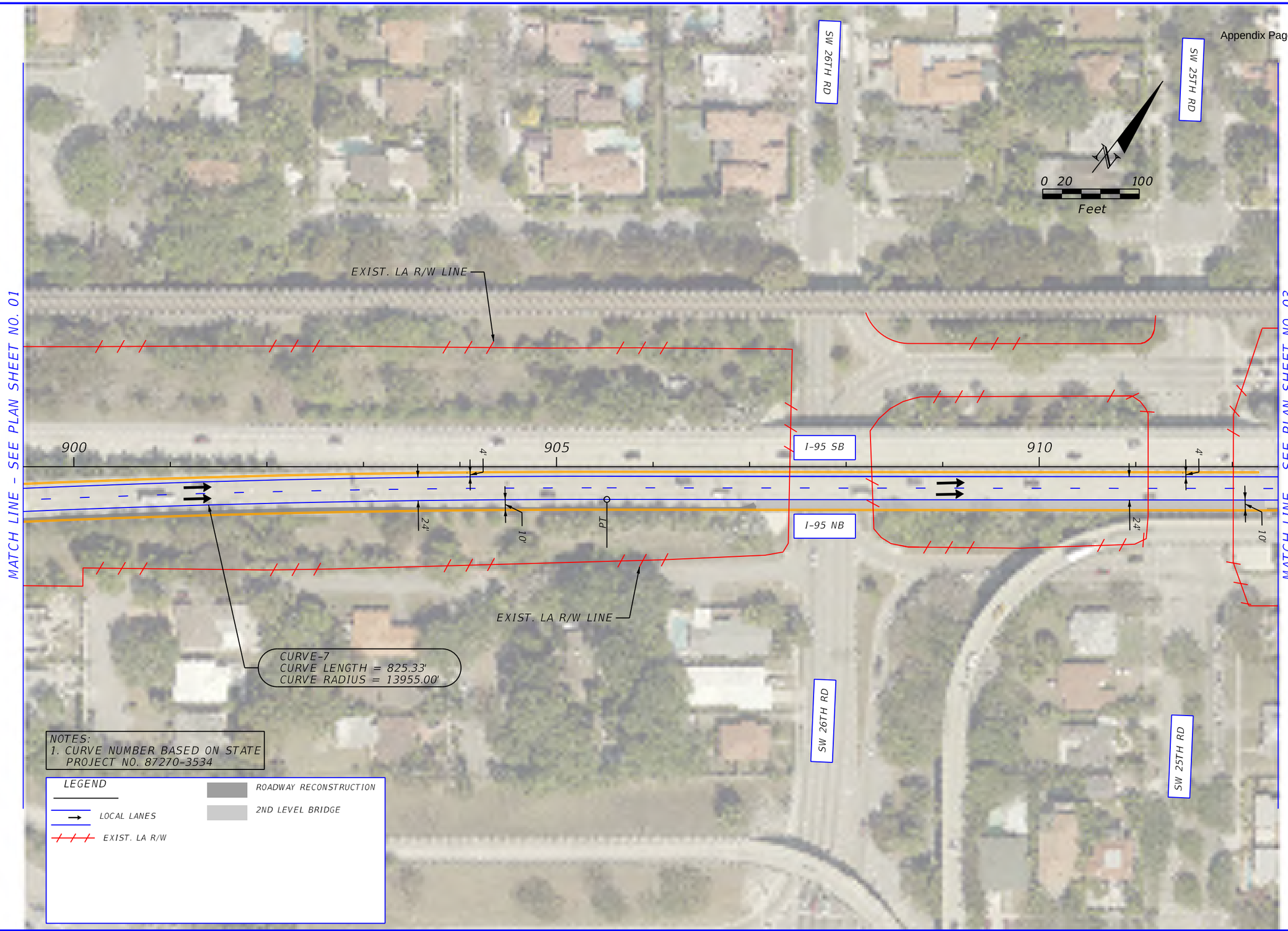

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SW 24TH RD

SW 23RD RD

SW 22ND RD

SW 21ST RD

SW 1ST AVE

0 20 100

Feet

EXIST. LA R/W LINE

915

920

925

I-95 SB

I-95 NB

24'

10'

8'

36'

10'

10'

4"

36'

8'

MATCH LINE - SEE PLAN SHEET NO. 02

MATCH LINE - SEE PLAN SHEET NO. 04

EXIST. LA R/W LINE

SW 24TH RD

SW 23RD RD

SW 22ND RD

SW 21ST RD

LEGEND

LOCAL LANES

EXIST. LA R/W

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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ROADWAY PLAN

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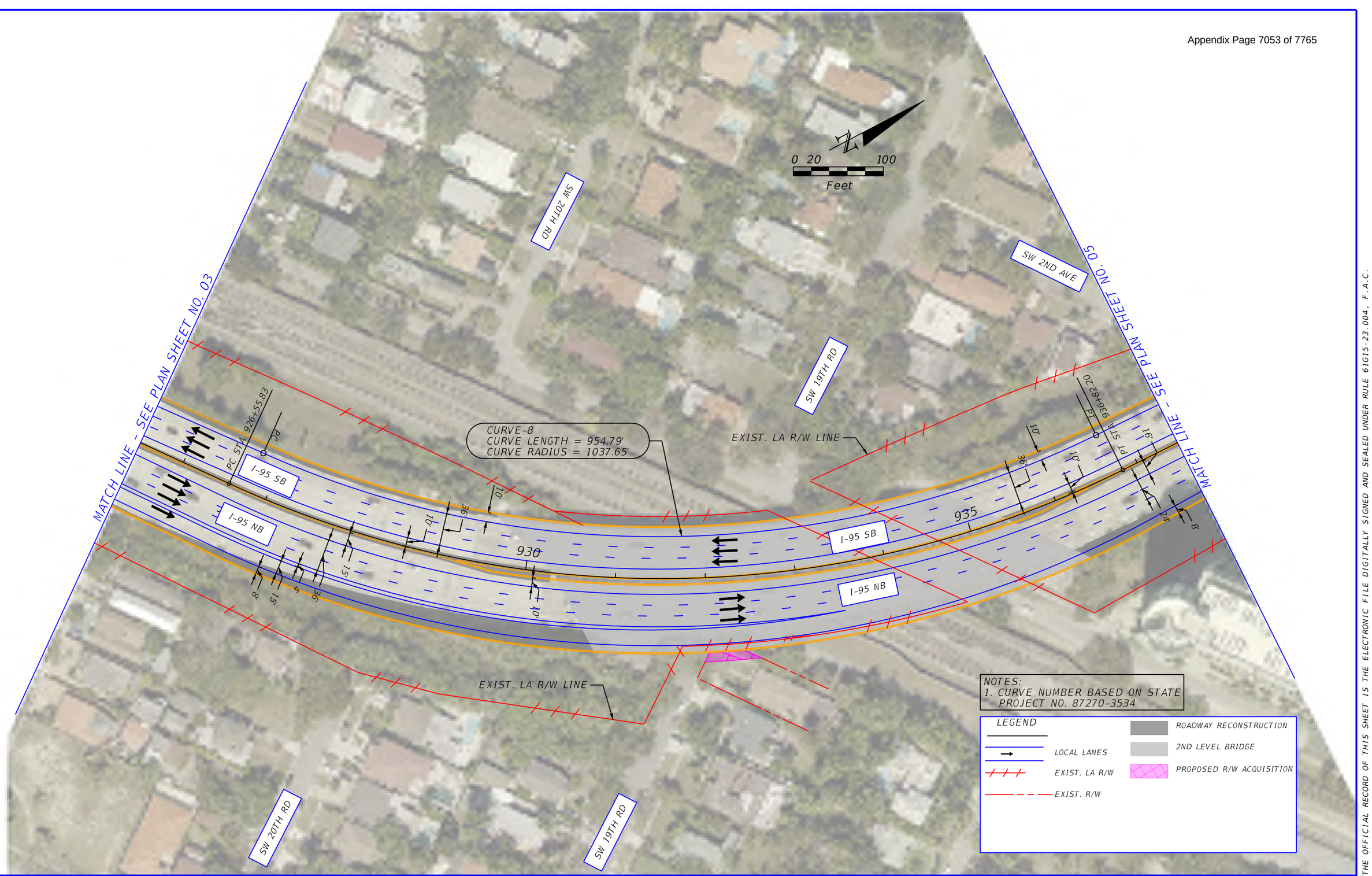

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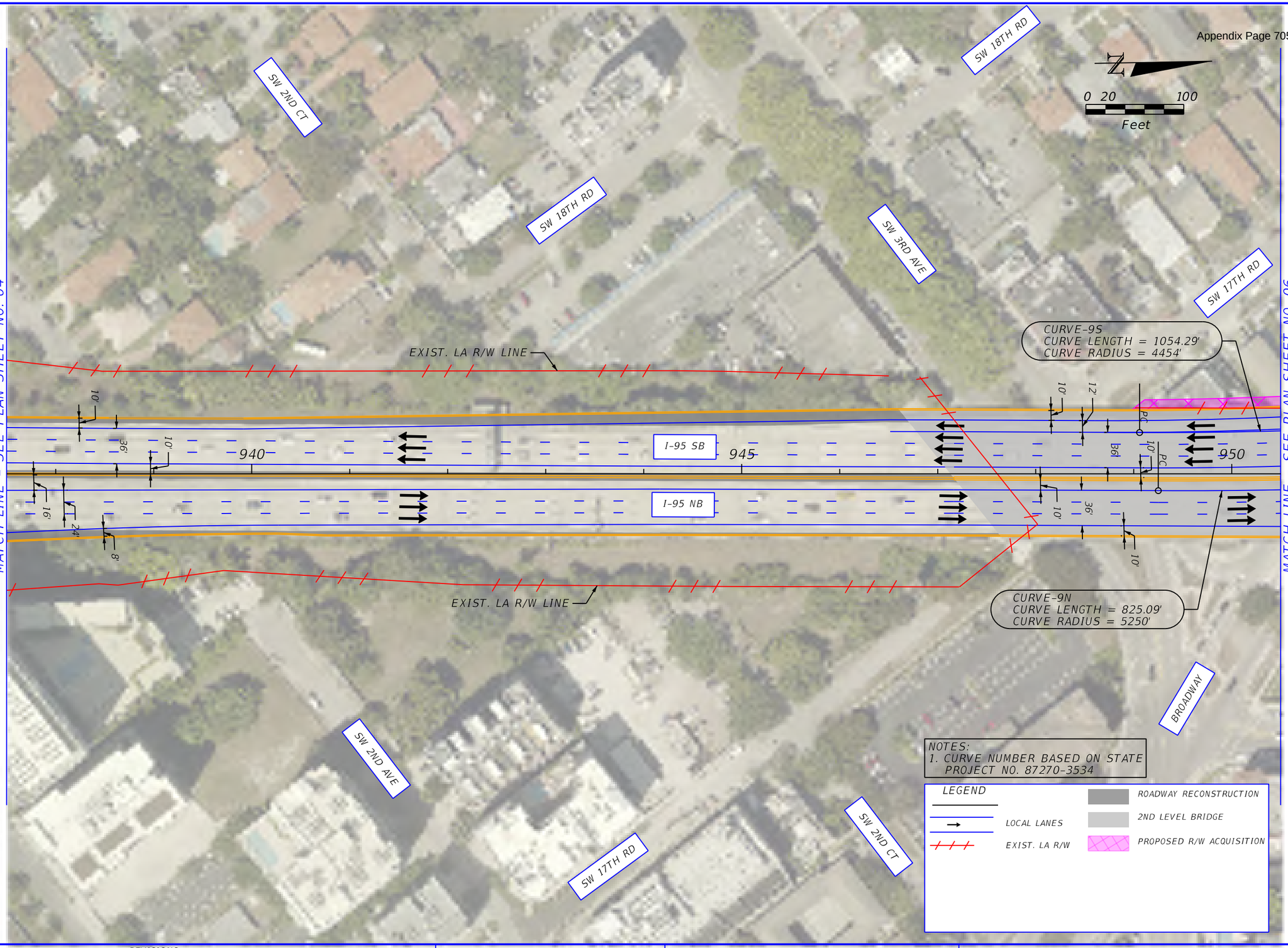

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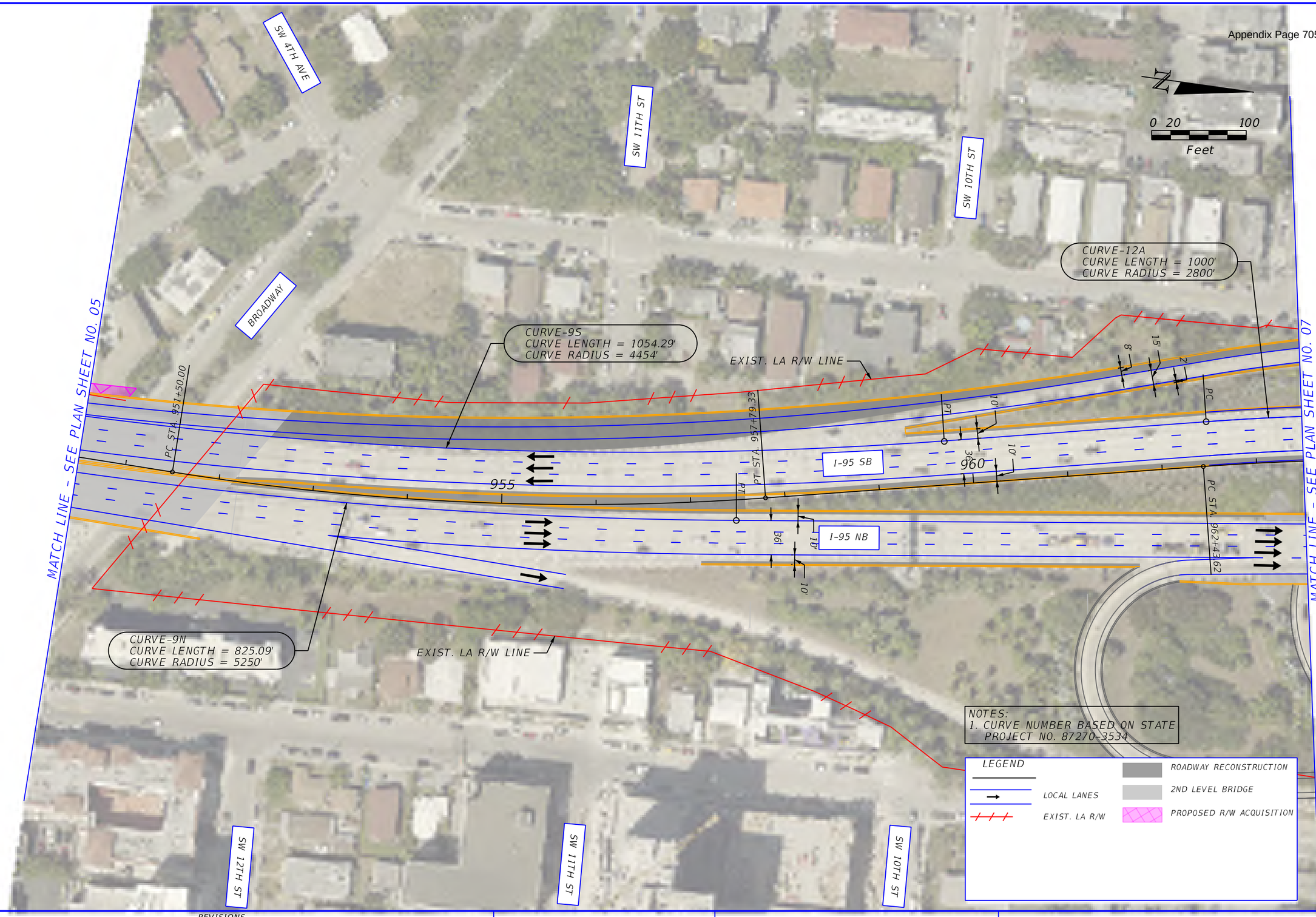

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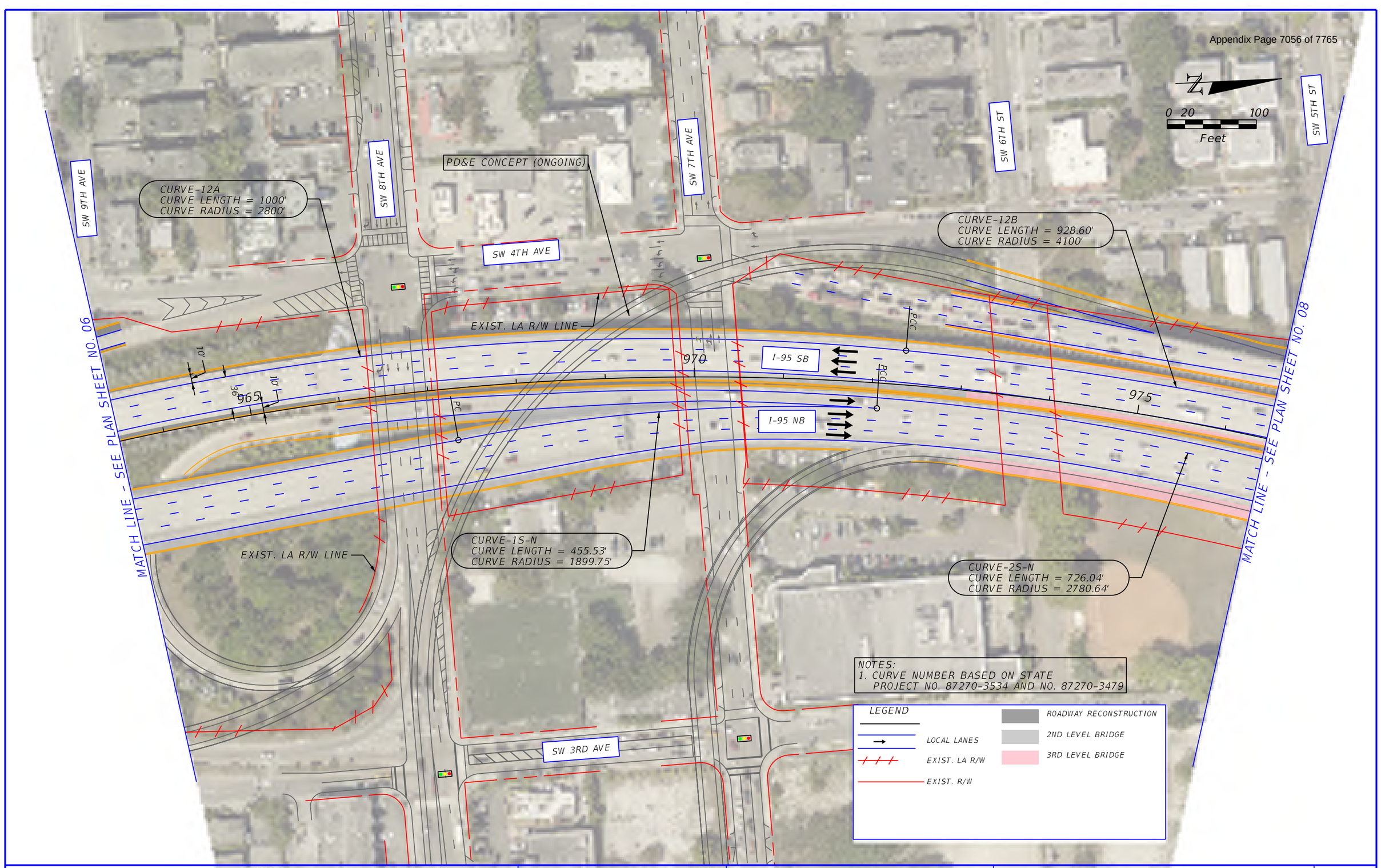

NOTES:
1. CURVE NUMBER BASED ON STATE PROJECT NO. 87270-3534 AND NO. 87270-3479

LEGEND

- LOCAL LANES
- EXIST. LA R/W
- EXIST. R/W
- ROADWAY RECONSTRUCTION
- 2ND LEVEL BRIDGE
- 3RD LEVEL BRIDGE

REVISIONS			
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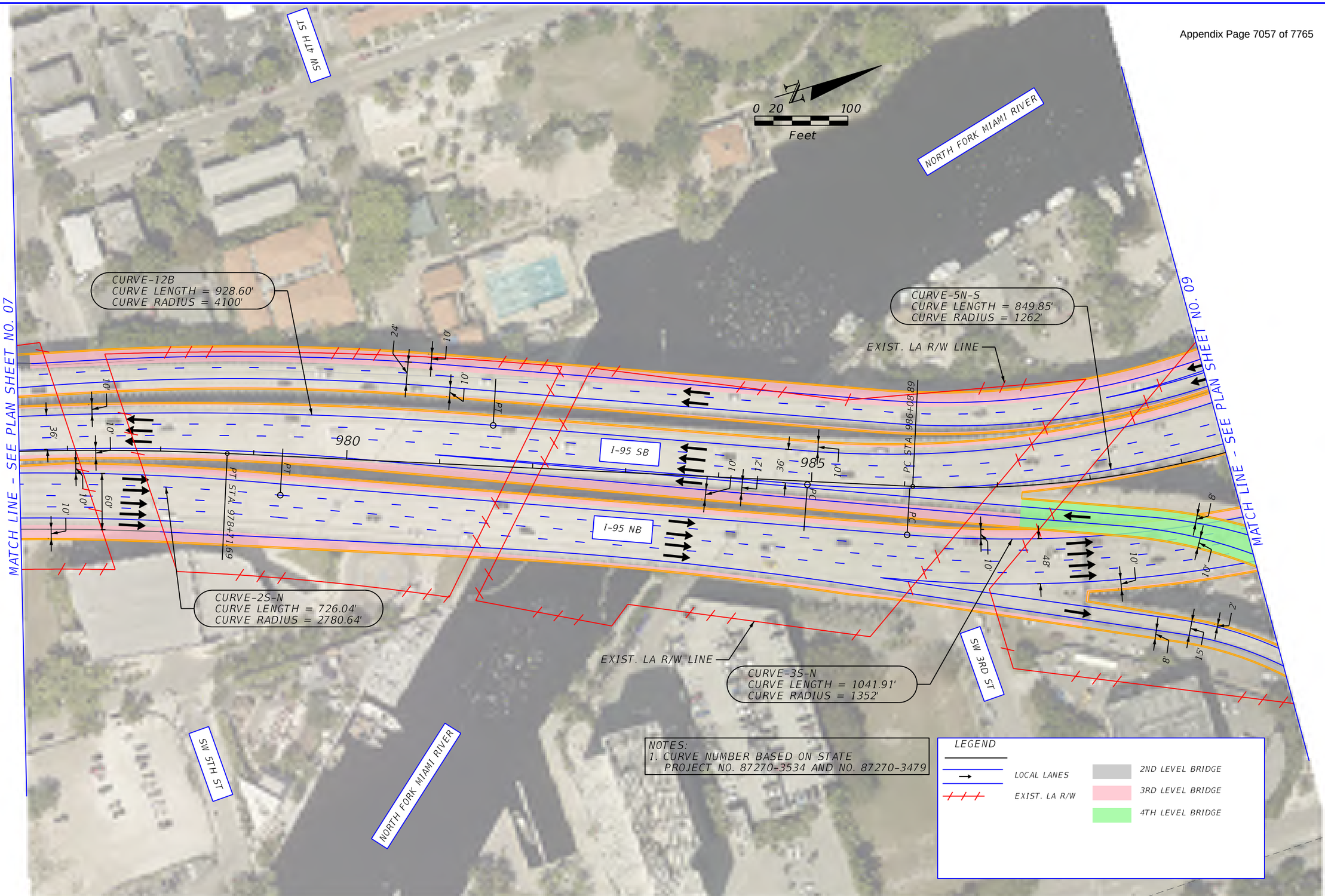

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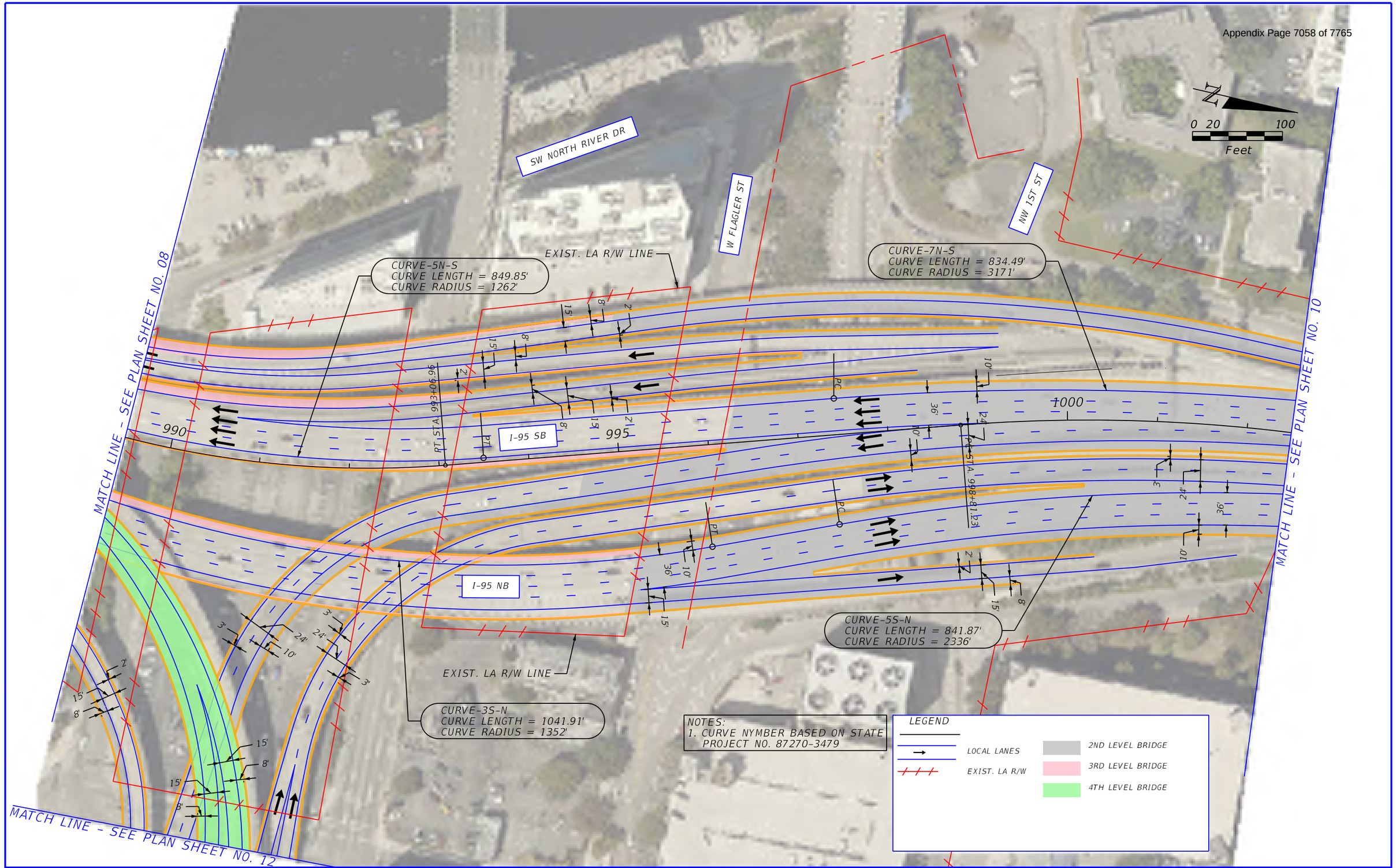

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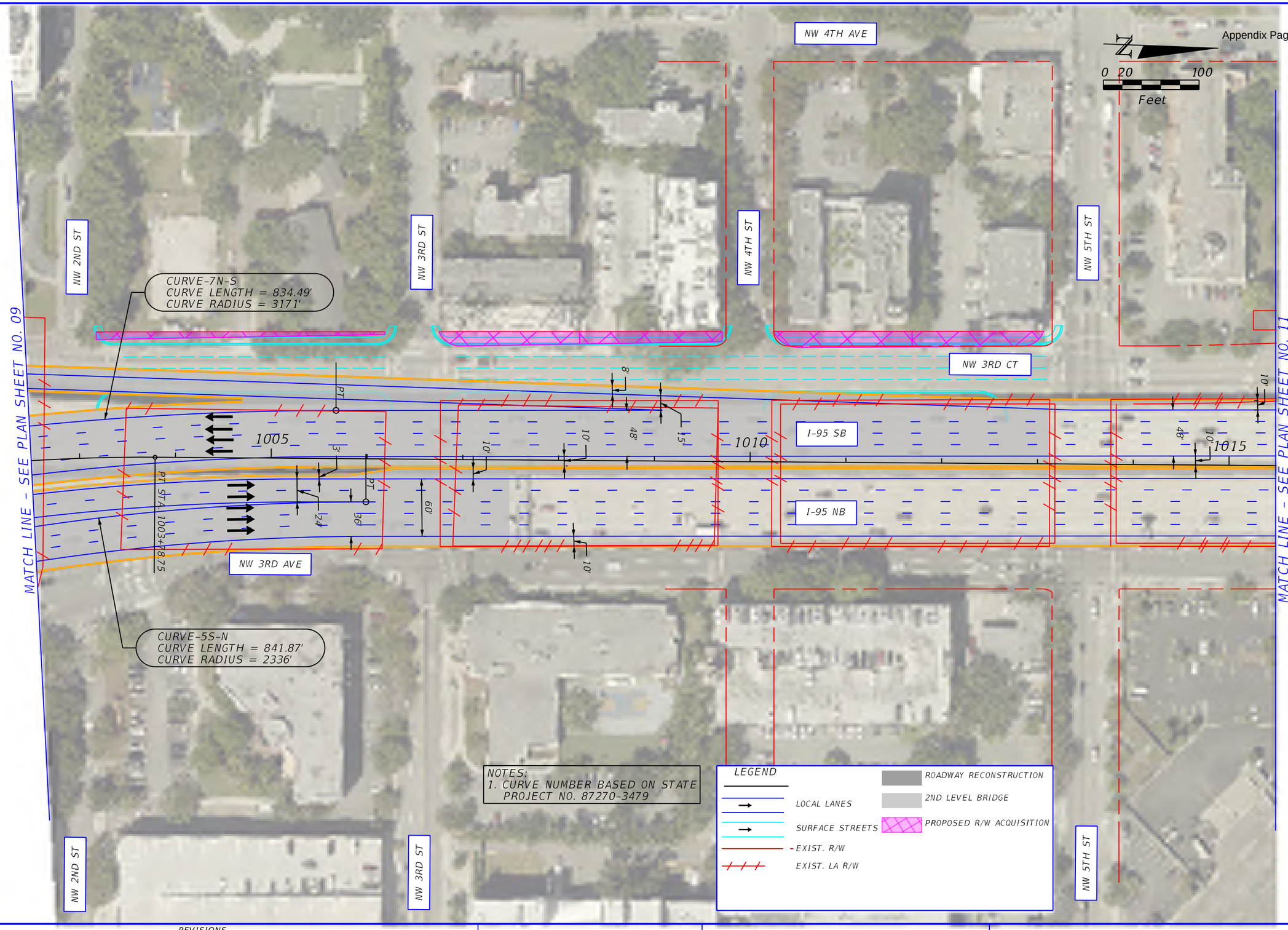

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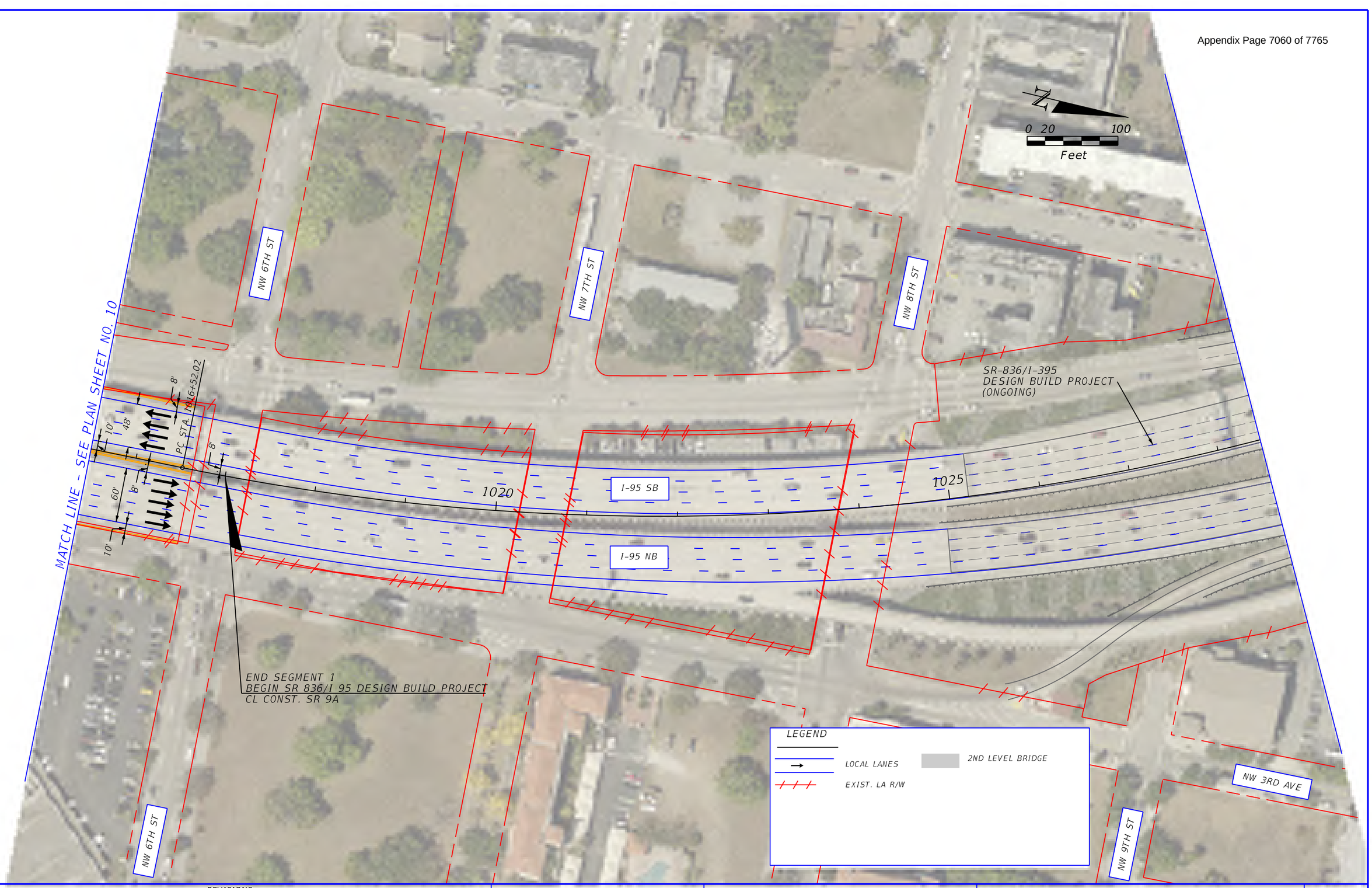

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

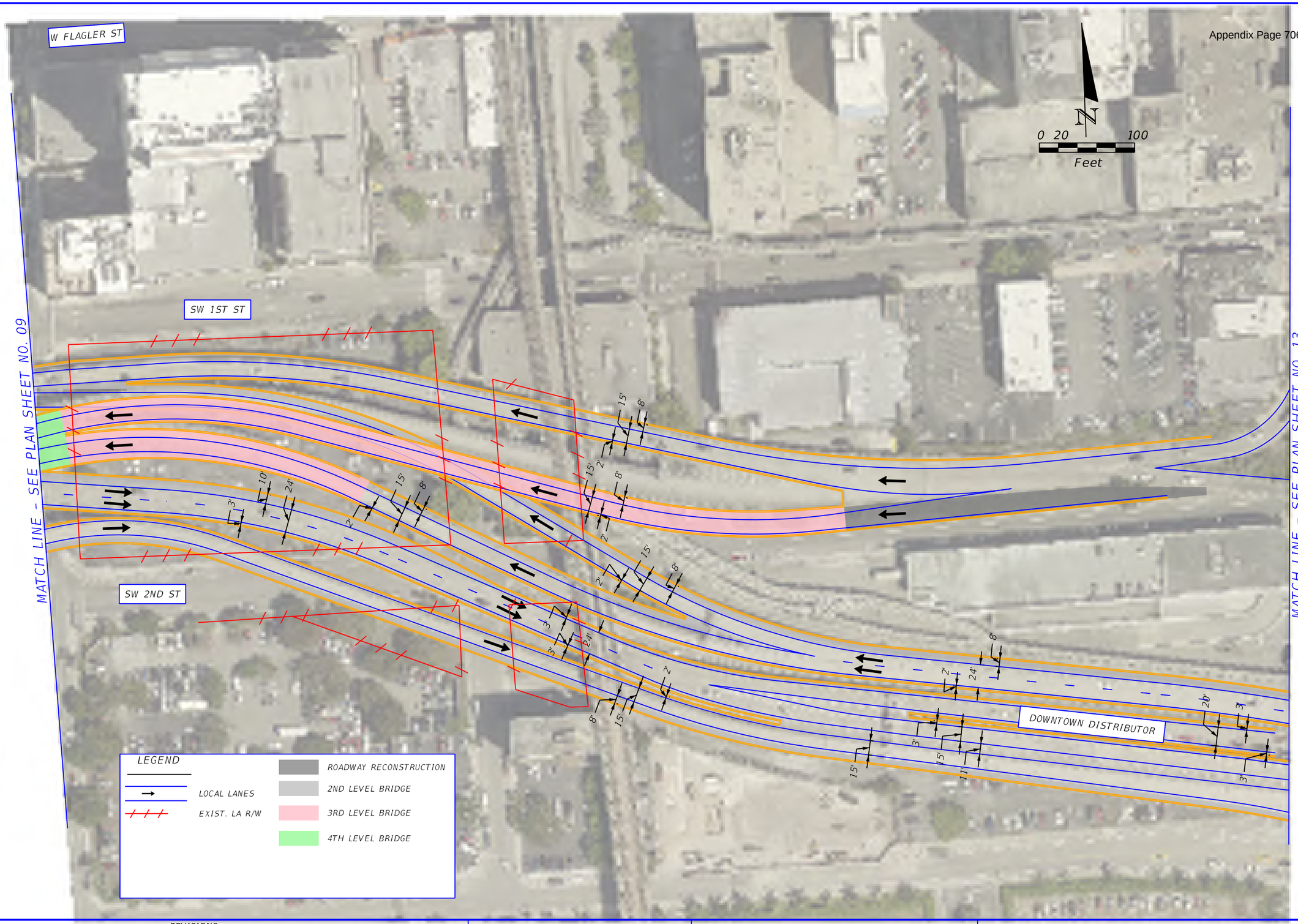
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



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STATE OF FLORIDA
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ROADWAY PLAN

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$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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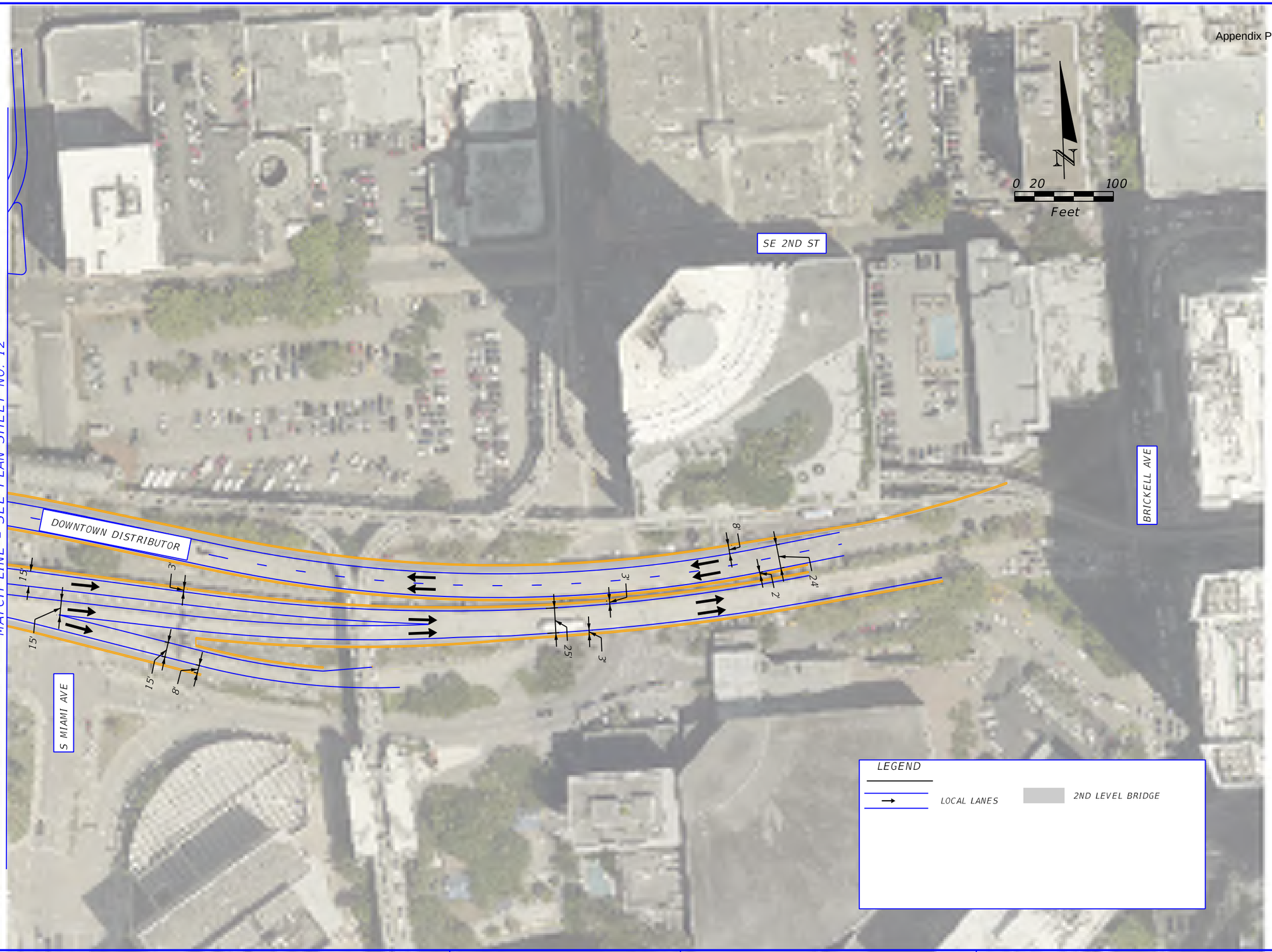

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STATE OF FLORIDA
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ROADWAY PLAN

SHEET NO.

$USER$ $DATE$ $TIME$ $MODELNAME$ $FILE$

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SEGMENT 2 PLAN SHEETS

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

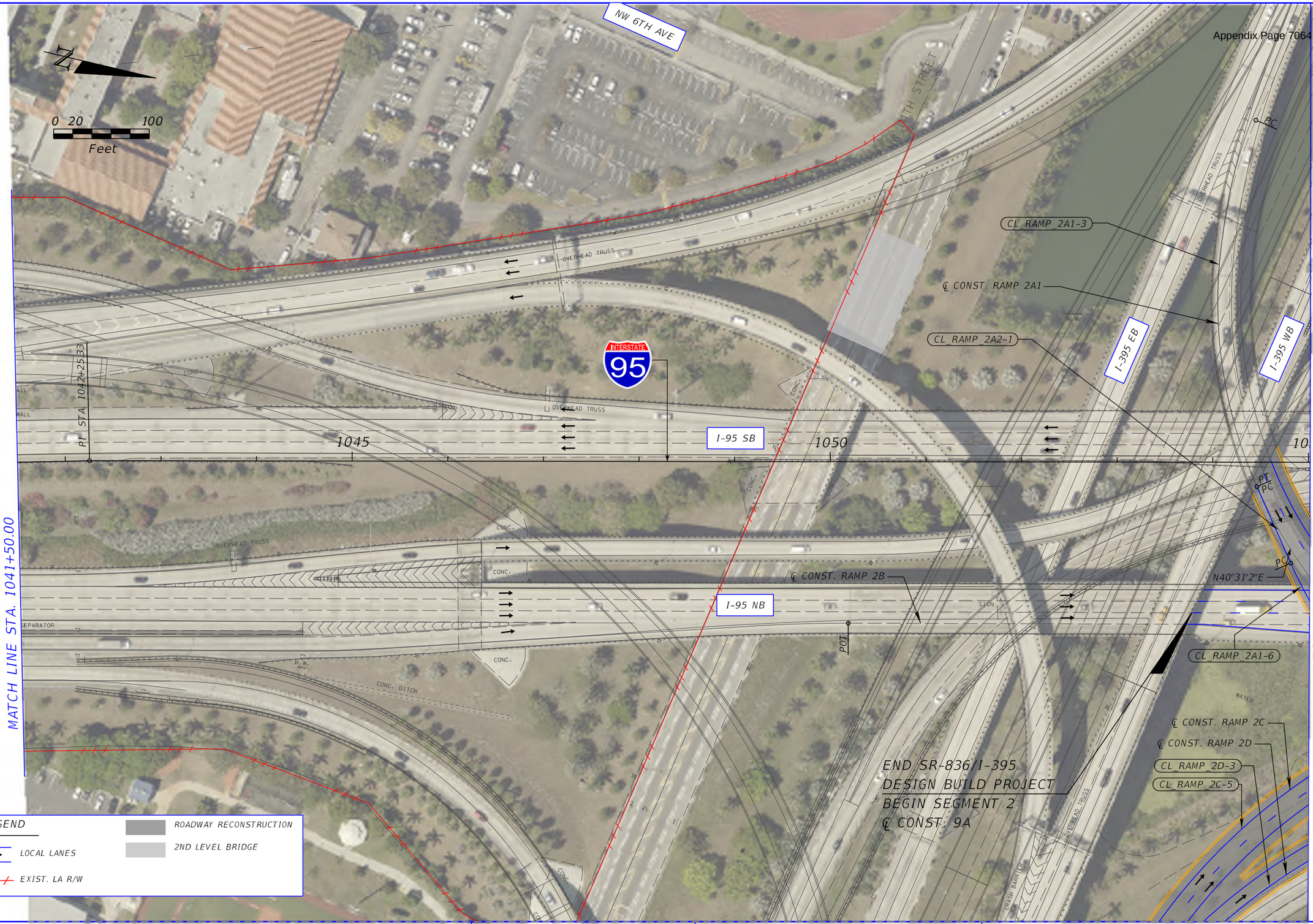
Kimley-Horn and Associates, Inc.
Certificate Of Authorization No. 696
Ramon F. Breton, P.E.
P.E. License No. 53139
189 South Orange Avenue, Suite 1000
Orlando, Florida 32801

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9A	MIAMI-DADE	414964-6-22-01

SEGMENT 2
PLAN SHEET

SHEET NO.



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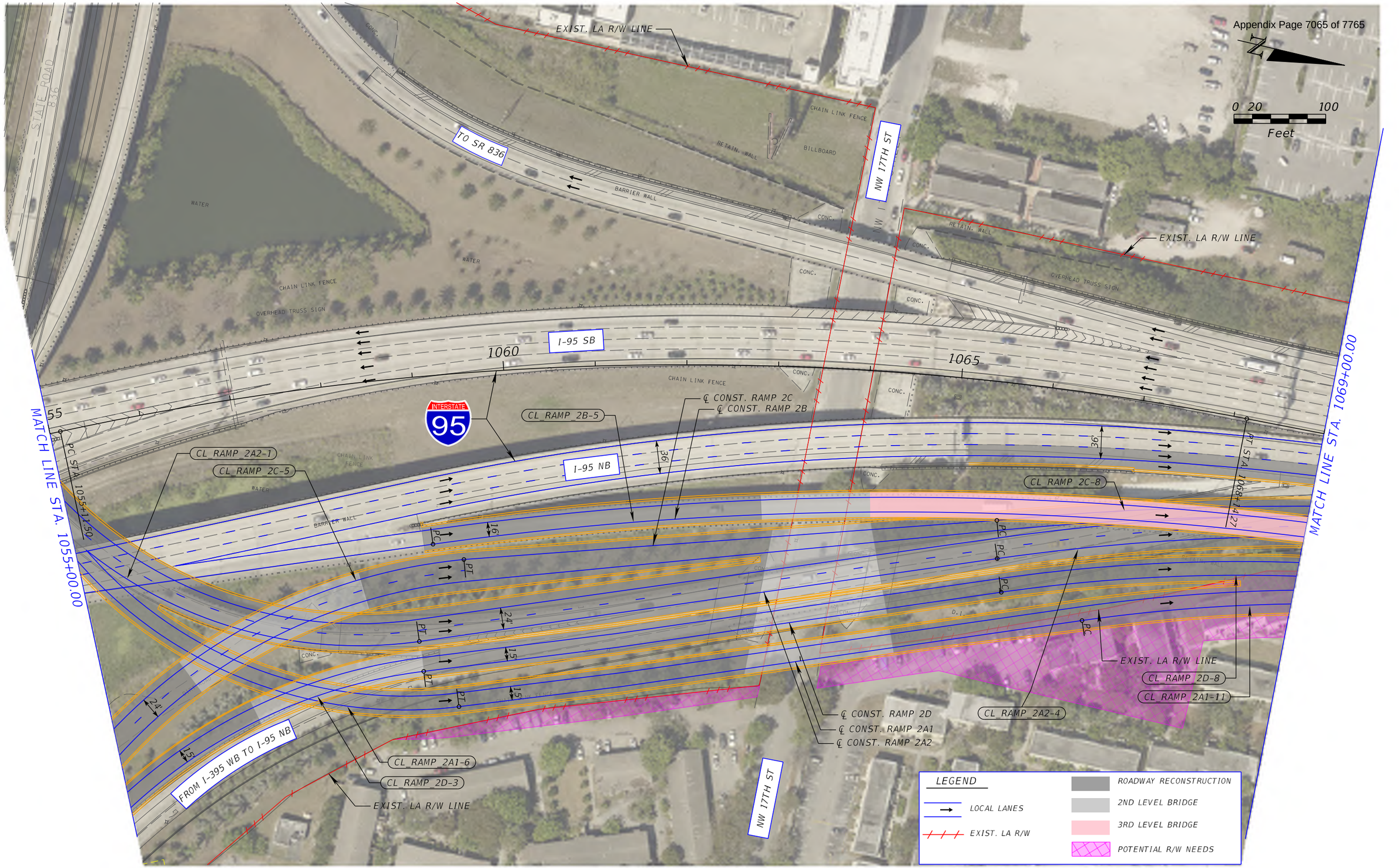

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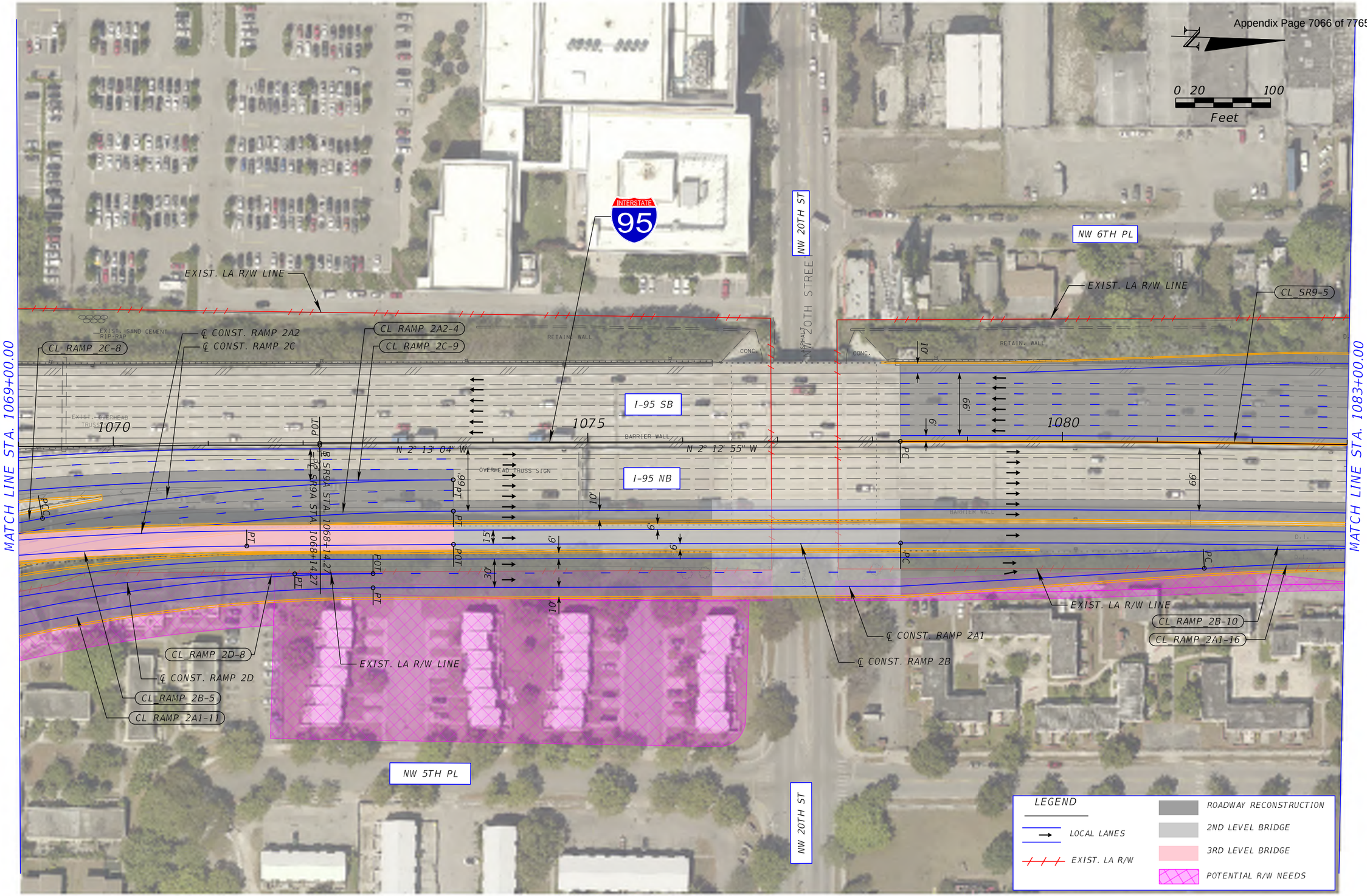

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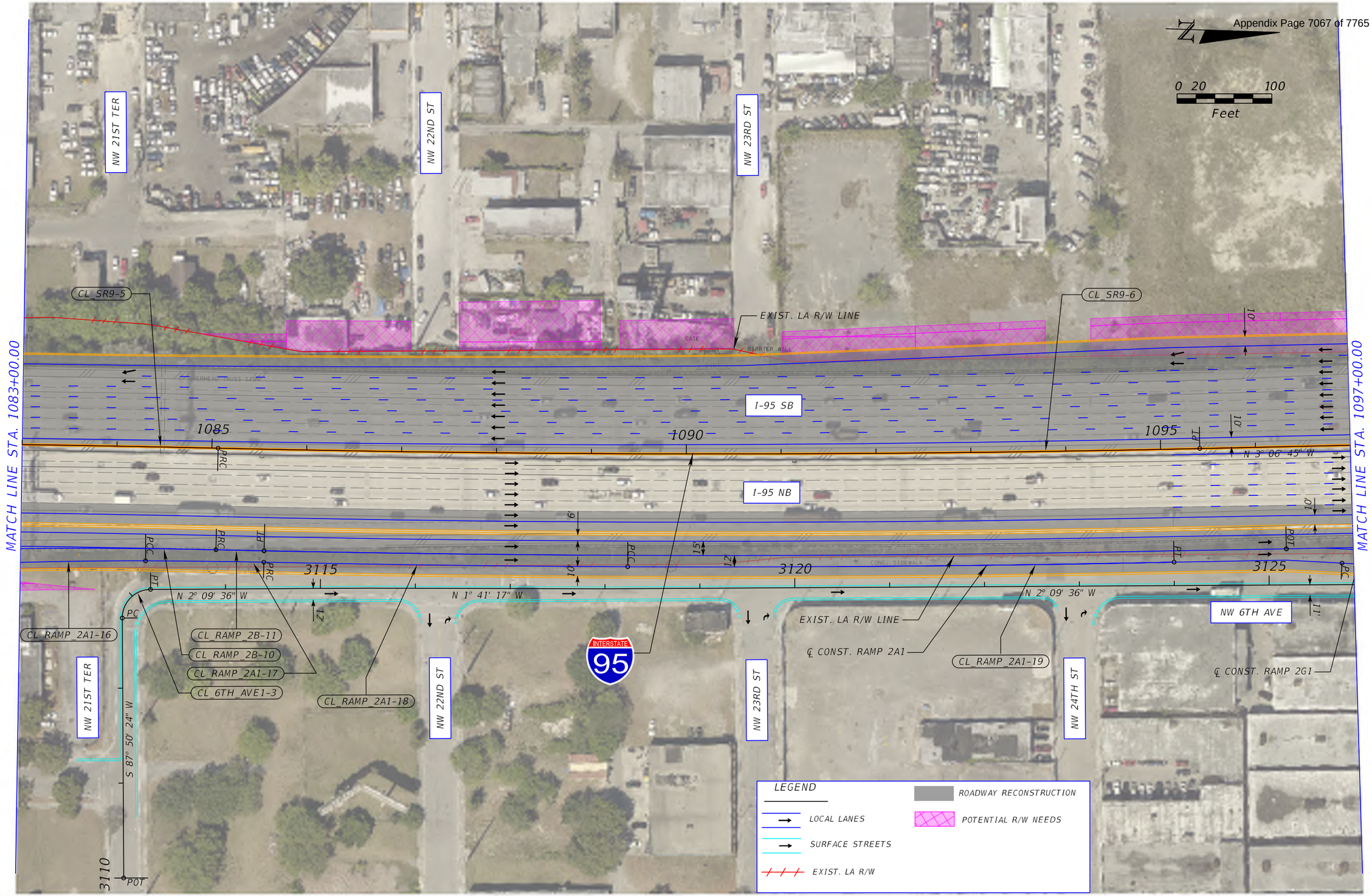

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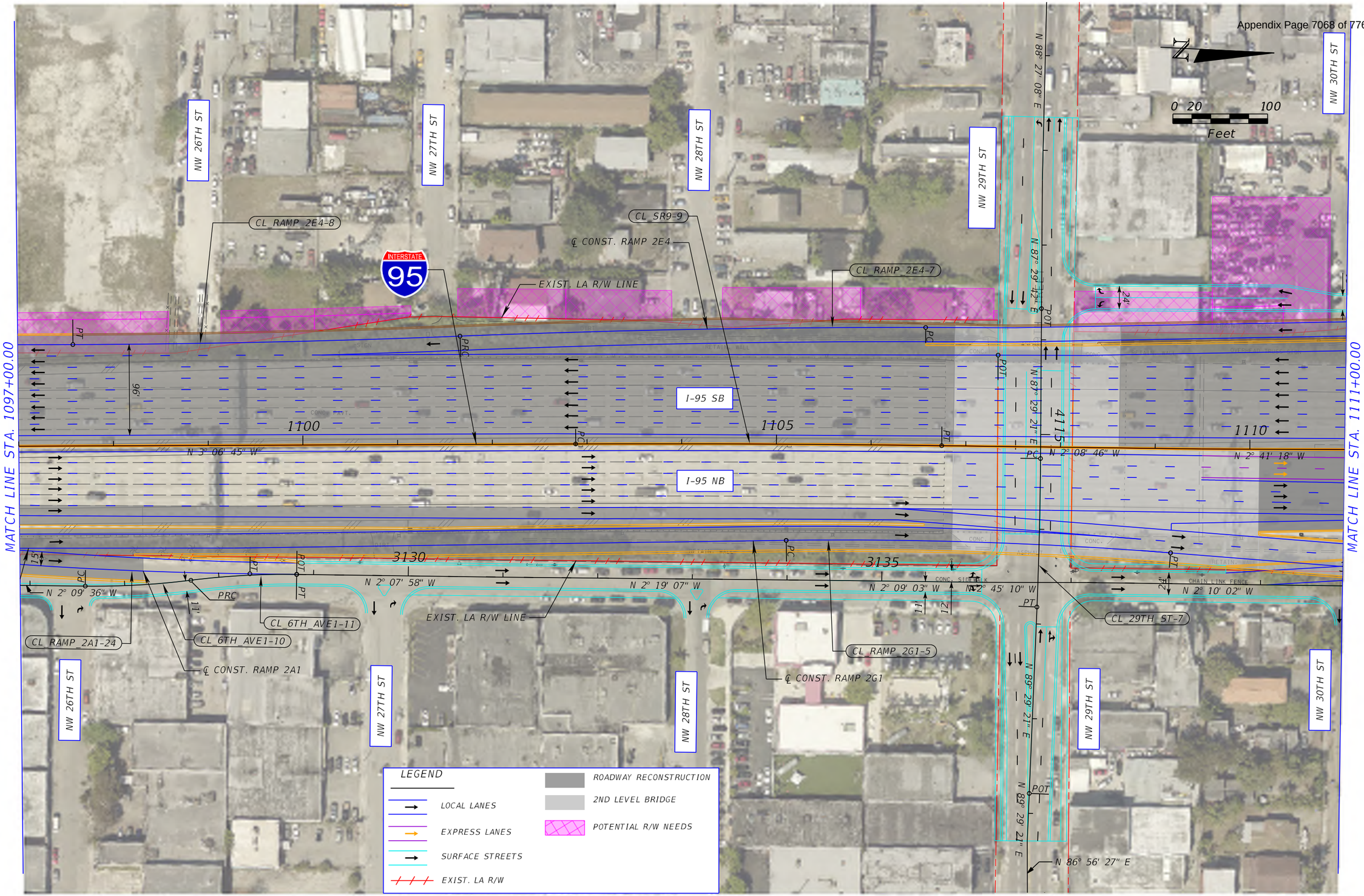

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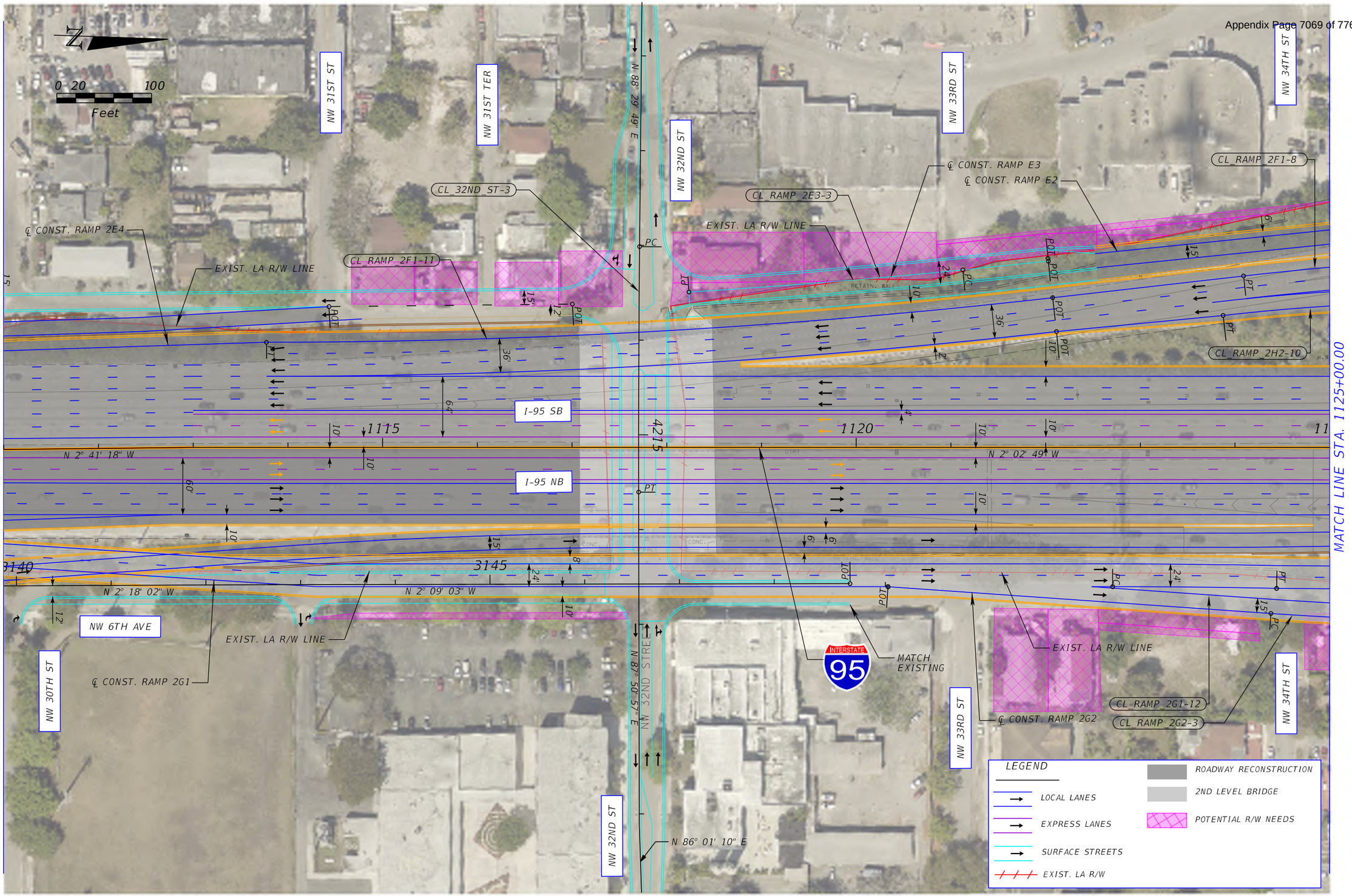

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MATCH LINE STA. 2022+78.66

N

0 20 100
Feet

4010

33'

22'

N 1° 36' 02" W

CL_441-3

N 5° 00' 11" W

4015

CL_441-6

6'

44'

30'

10'

CONC.

NW 35TH ST

NW 36TH ST

EXIST. LA R/W LINE

℄ CONST. RAMP 2F1

EXIST. LA R/W LINE

℄ CONST. RAMP E2

EXIST. LA R/W LINE

NW 37TH STREET

FROM SR 112 EB TO I-95 SB

FROM SR 112 EB TO I-95 SB

CL_SR112_E-5

PT

CL_RAMP_2E2-9

PCC

CL_RAMP_2F1-5

CL_RAMP_2E2-6

CL_RAMP_2F1-8

CL_RAMP_2H2-10

PC

PI

ASPHALT

CONC.

H.W.

15'

10'

24'

8'

6'

CL_RAMP_2H2-7

℄ CONST. RAMP 2H2

INTERSTATE 95

CL_RAMP_2G3-3

64'

I-95 SB

I-95 NB

1130

1135

N 2° 02' 49" W

N 1° 43' 55" W

S 7507'03" 22.7" E

60'

CONC. GUTTER

ASPHALT

RETAIN. WALL

POT

℄ CONST. RAMP 2G4

CL_SR112-8

2130

2045

FROM SR 112 WB TO I-95 SB

CL_RAMP_2G2-3

EXIST. LA R/W LINE

CL_RAMP_2G2-6

℄ CONST. RAMP 2G2

FROM I-95 NB TO SR 112 EB

℄ CONST. RAMP 2G1

CL_RAMP_2G1-17

CL_RAMP_2H2-4

CL_SR112_E-8

MATCH LINE STA. 2132+33.68

LEGEND

- LOCAL LANES
- EXPRESS LANES
- EXISTING IMPROVEMENTS
- SURFACE STREETS
- EXIST. LA R/W
- ROADWAY RECONSTRUCTION
- 2ND LEVEL BRIDGE
- 3RD LEVEL BRIDGE
- POTENTIAL R/W NEEDS

MATCH LINE STA. 1125+00.00

MATCH LINE STA. 1139+00.00

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ROADWAY PLAN

SHEET NO.

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MATCH LINE STA. 2028+00.00

MATCH LINE STA. 1139+00.00

MATCH LINE STA. 1153+00.00

FROM NB I-95 TO SR 112 WB

FROM SR 112 EB TO I-95 NB

FROM I-95 SB TO SR 112 EB

FROM SR 112 WB TO I-95 NB

CL_SR112_E-5

CL_SR112-5

CL_RAMP_2G3-3

CL_441-9

CL_RAMP_2E2-6

CL_RAMP_2F2-3

CL_RAMP_2E1-5

CL_441-12

CL_441-15

EXIST. LA R/W LINE

NW 7TH AVE

CL_RAMP_2E7-2

CL_RAMP_2E1-5

EXIST. LA R/W LINE

℄ CONST. RAMP 2E1

NW 43RD ST

NW 44TH ST

U.S. 441

CL_RAMP_2E5-1

CL_RAMP_2E2-3

CL_RAMP_2E6-4

CL_RAMP_2F2-4

CL_RAMP_2F3-5

CL_RAMP_2E7-1

CL_RAMP_2E6-1

I-95 SB

I-95 NB

CL_RAMP_2E5-2

CL_RAMP_2E6-5

CL_RAMP_2H3-1

CL_RAMP_2H1-9

CL_RAMP_2H3-4

CL_RAMP_2H1-12

℄ CONST. RAMP 2H1

EXIST. LA R/W LINE

NW 41ST ST

NW 42ND ST

NW 43RD ST

4020

4025

4030

1140

1145

1150

N 37° 37' 13" E

N 15° 29' 41" W

N 36° 39' 38" W

N 1° 43' 55" E

N 2° 37' 09" W

S 77° 10' 47" E

N 2° 36' 25" W

0 20 100

Feet

MATCH LINE
STA. 2045+62.67

LEGEND

- LOCAL LANES
- EXPRESS LANES
- SURFACE STREETS
- EXIST. LA R/W
- ROADWAY RECONSTRUCTION
- 2ND LEVEL BRIDGE
- 3RD LEVEL BRIDGE
- 4TH LEVEL BRIDGE
- 5TH LEVEL BRIDGE
- POTENTIAL R/W NEEDS

REVISIONS			
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ROADWAY PLAN

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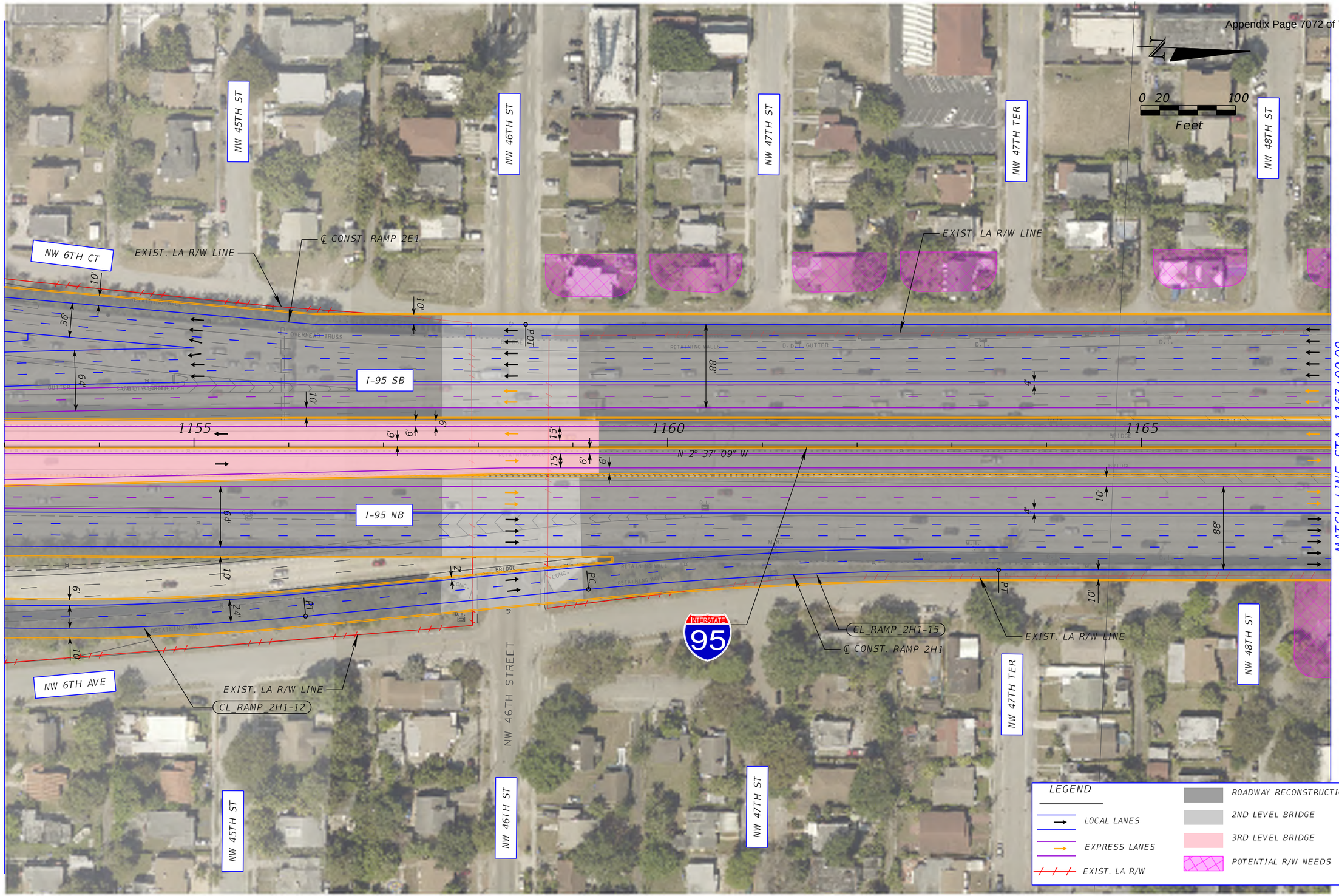

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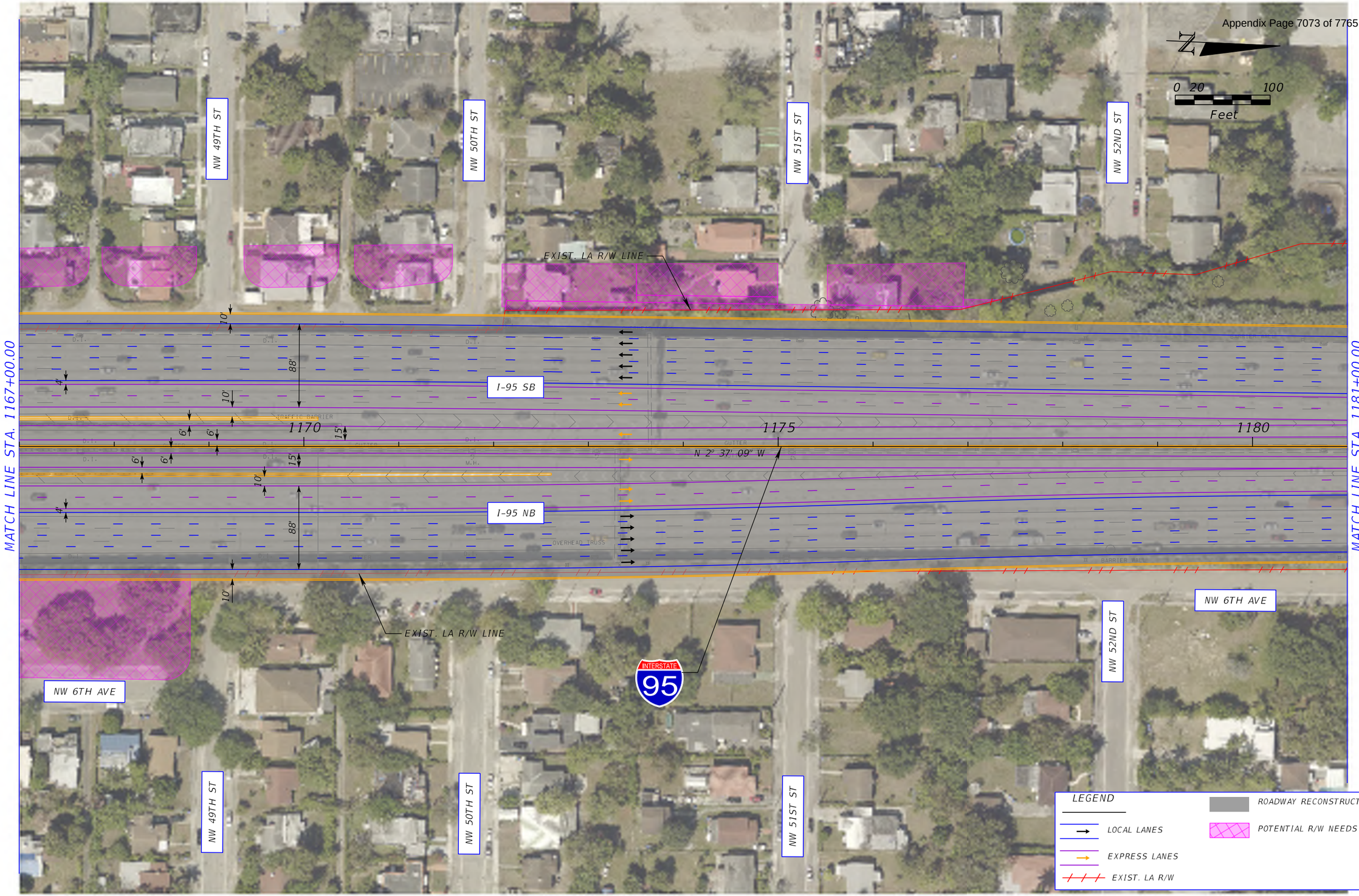

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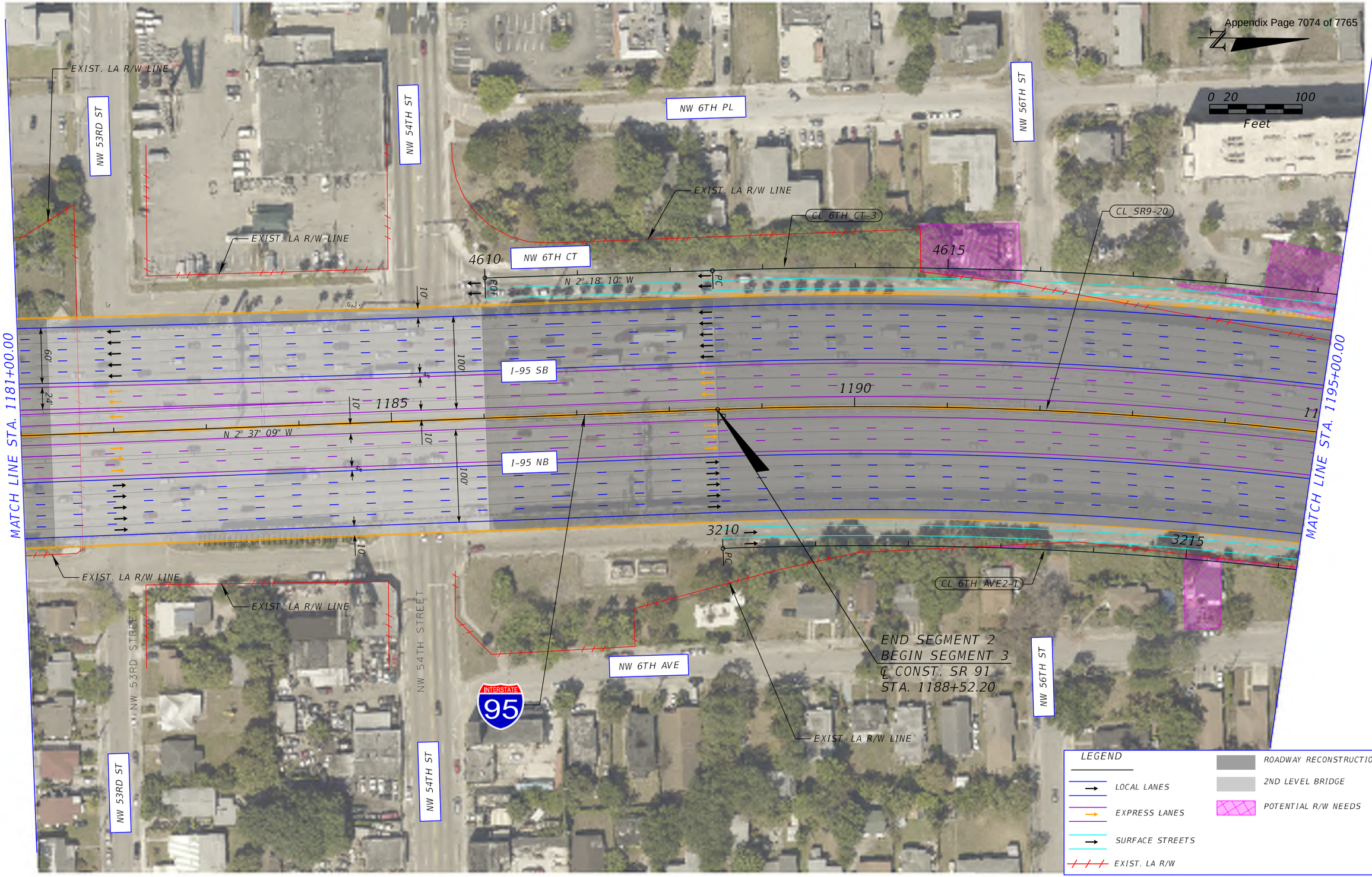

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ROADWAY PLAN

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MATCH LINE STA. 1055+00.00

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ROADWAY PLAN

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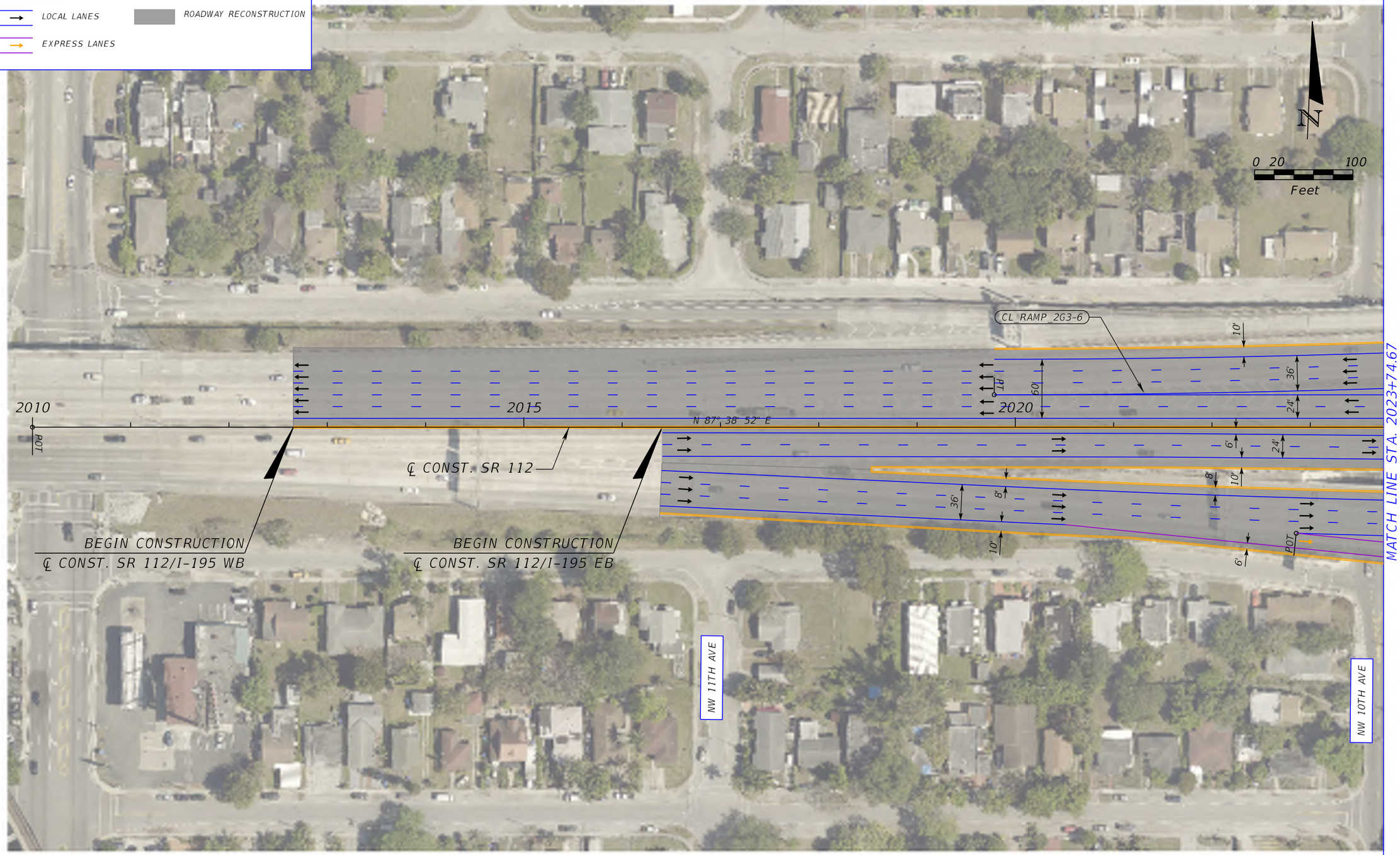
LEGEND

LOCAL LANES

EXPRESS LANES

ROADWAY RECONSTRUCTION



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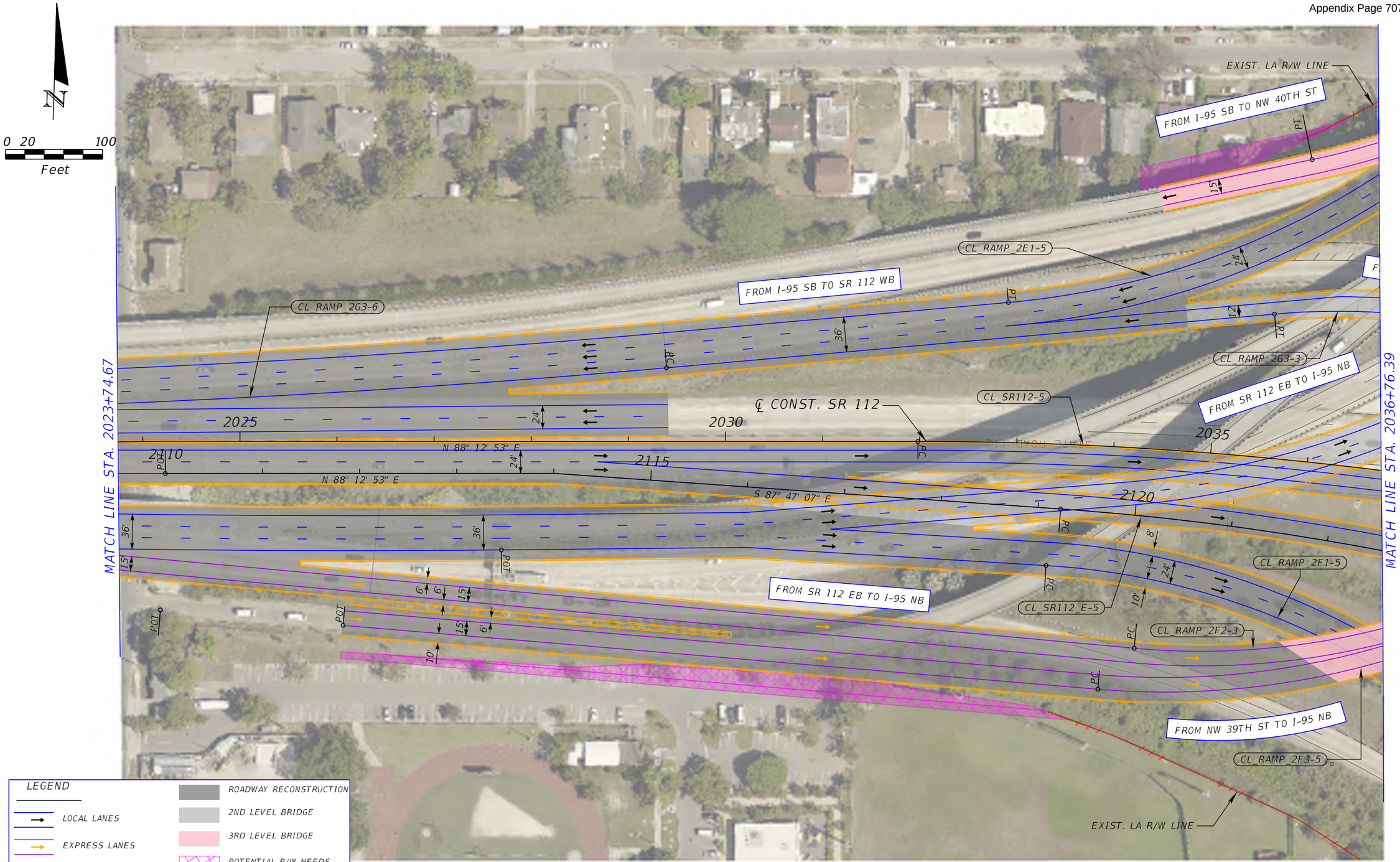
ROADWAY PLAN

SHEET NO.



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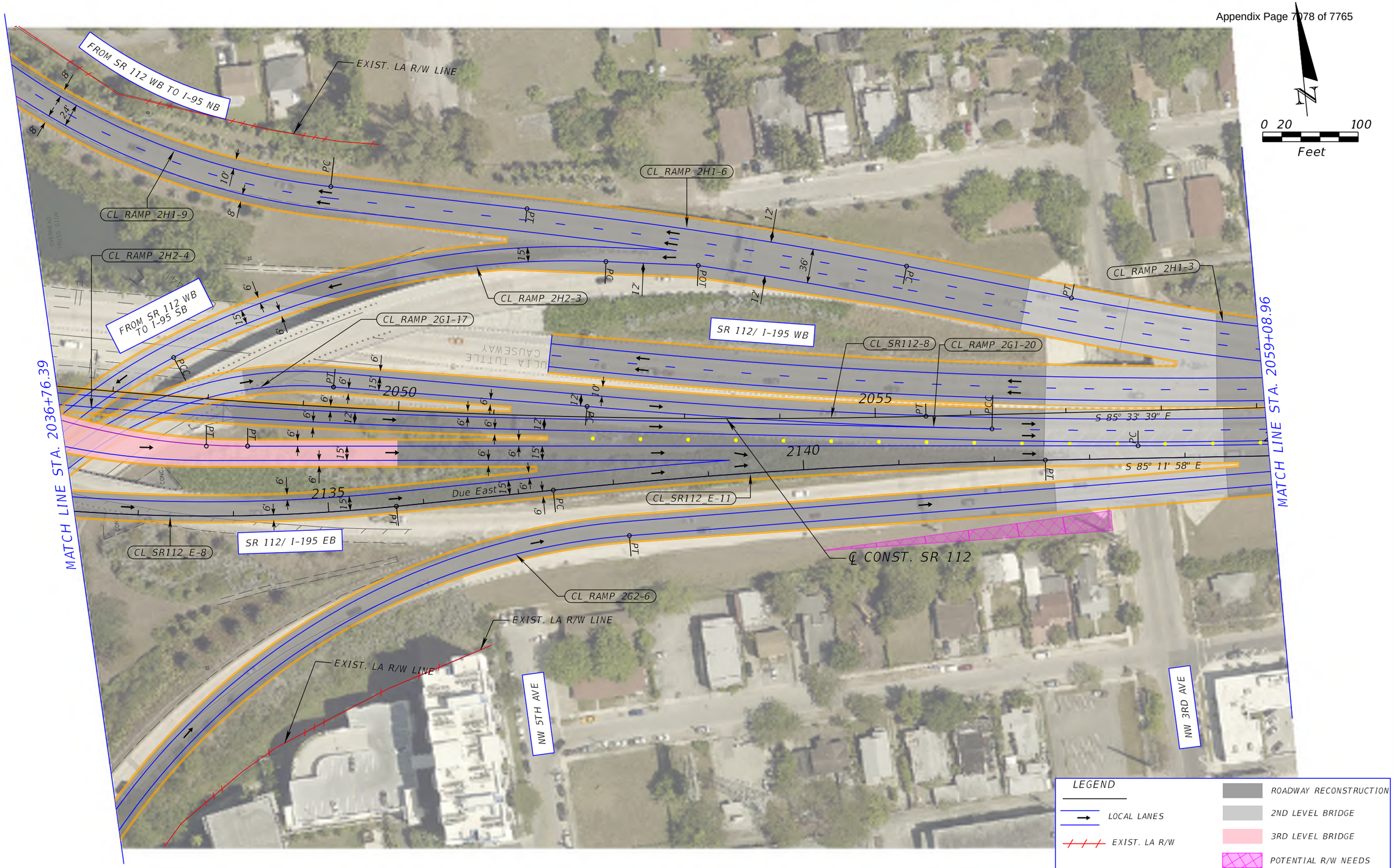

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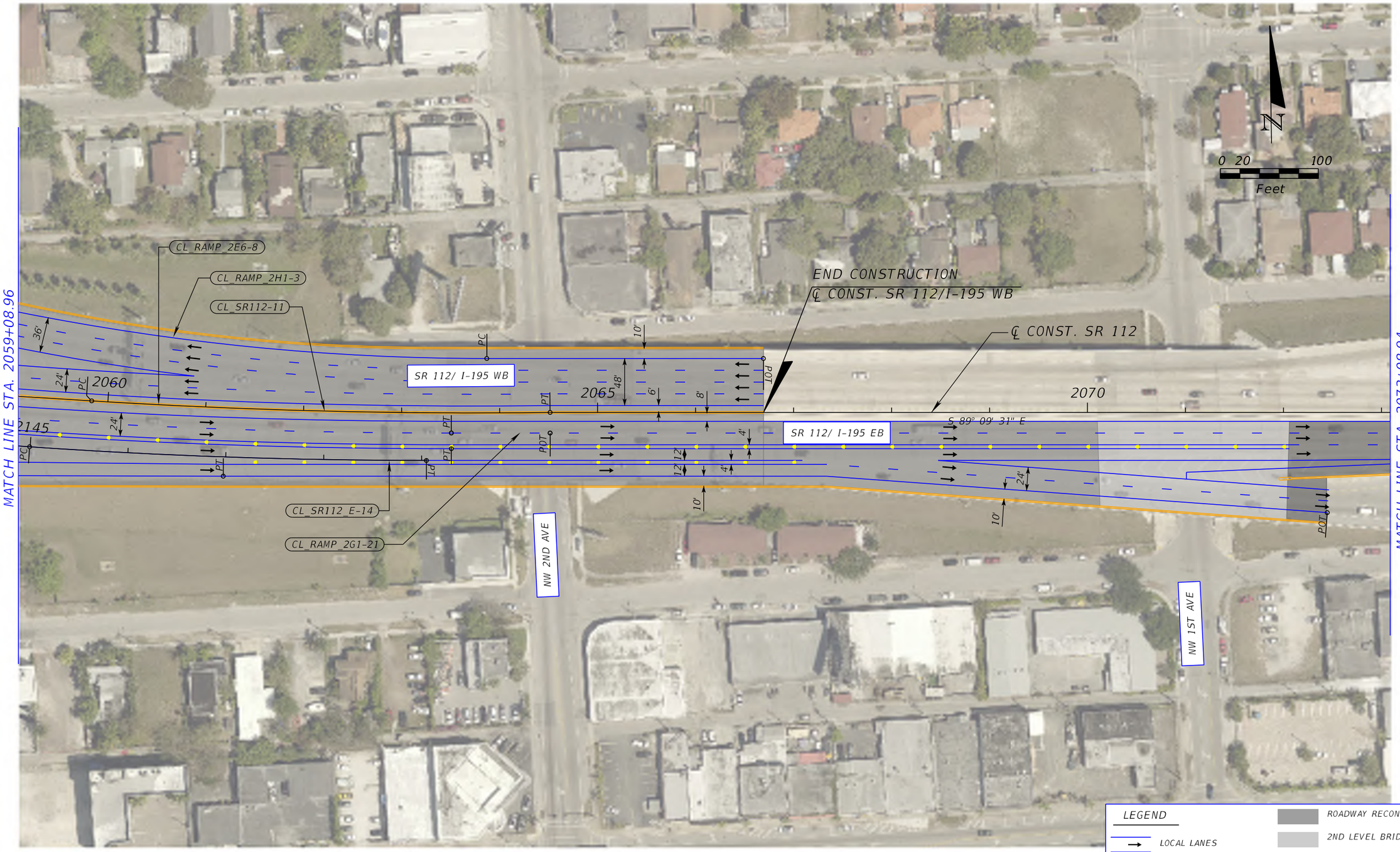

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MATCH LINE STA. 2073+08.94

2075

POT

S 89° 09' 31" E

36'

10'

END CONSTRUCTION
℄ CONST. SR 112/I-195 EB

N MIAMI AVE

2501

N

0 20 100
Feet

MATCH LINE STA. 2069+00.00

LEGEND

LOCAL LANES

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

REVISIONS			
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ROADWAY PLAN

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SEGMENT 3 PLAN SHEETS

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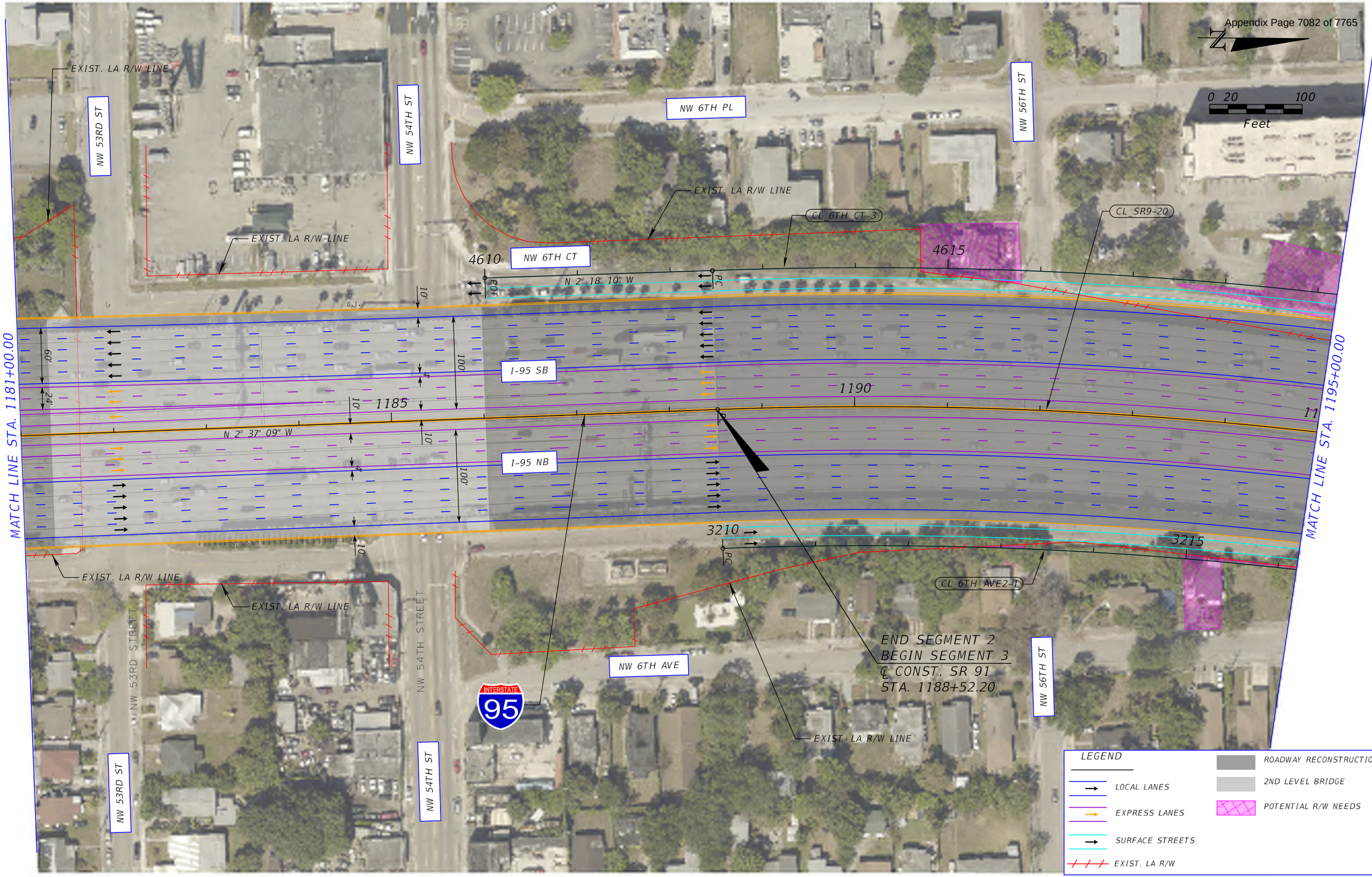
SEGMENT 3
PLAN SHEET

SHEET NO.



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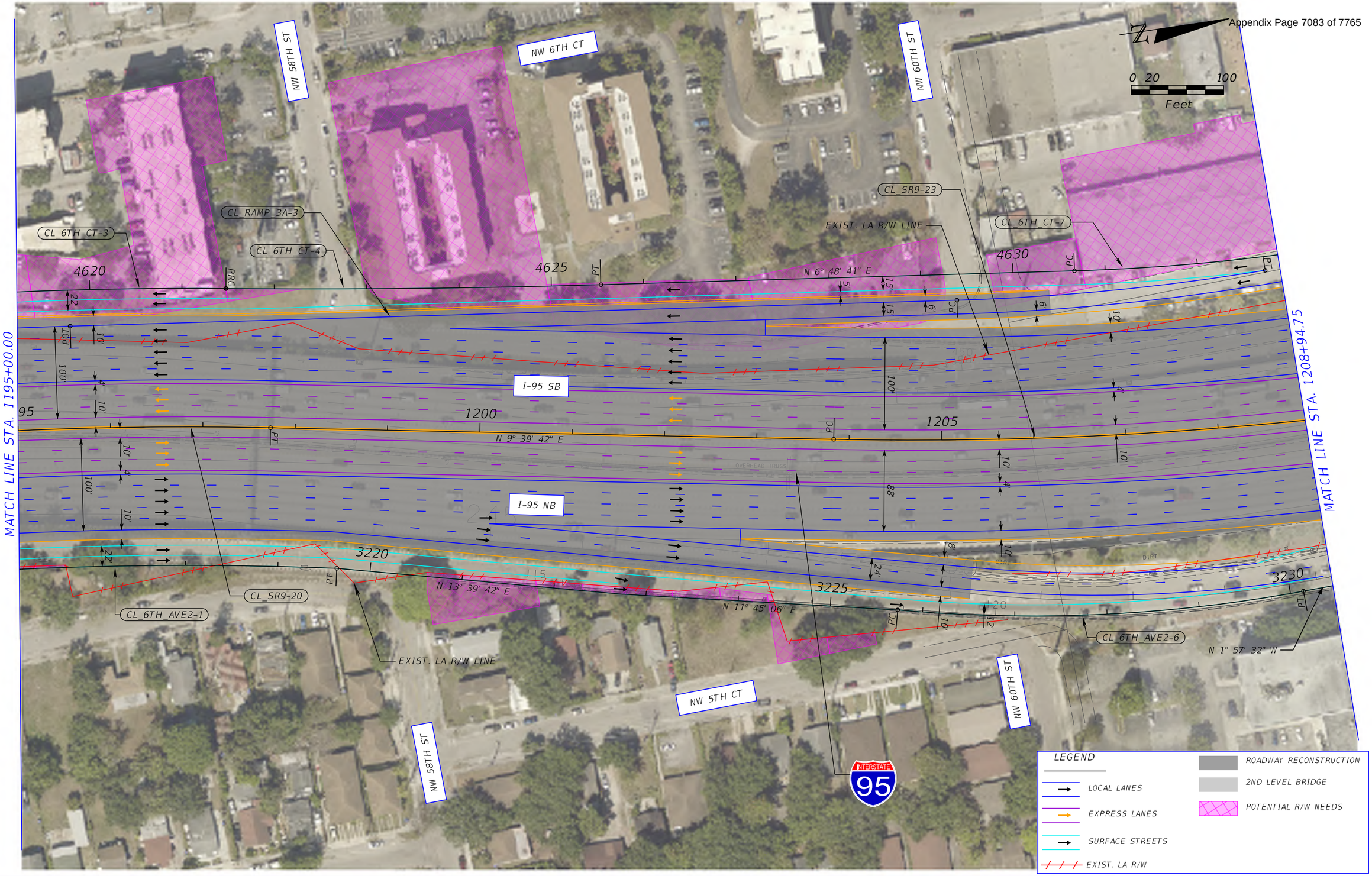

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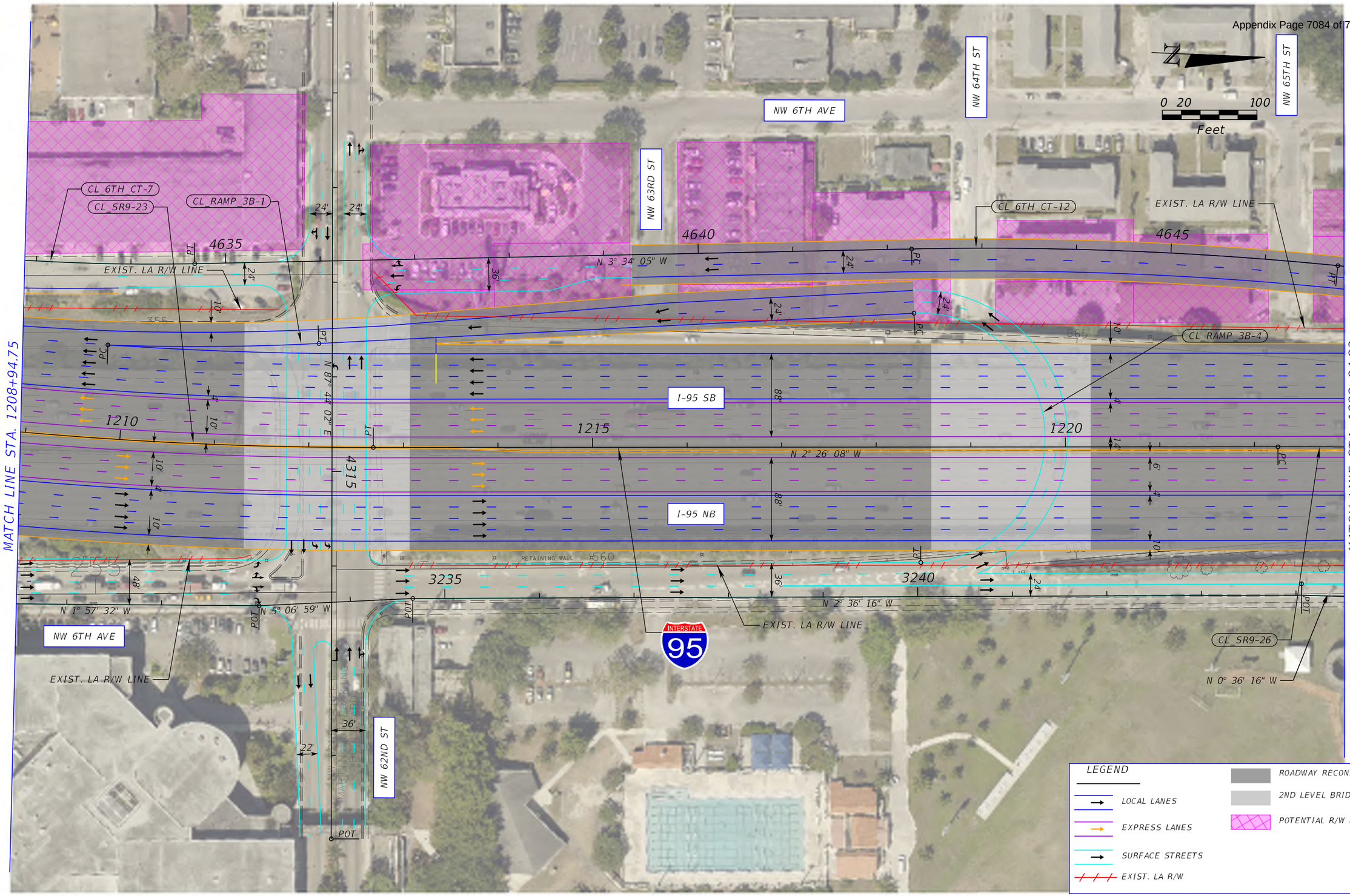

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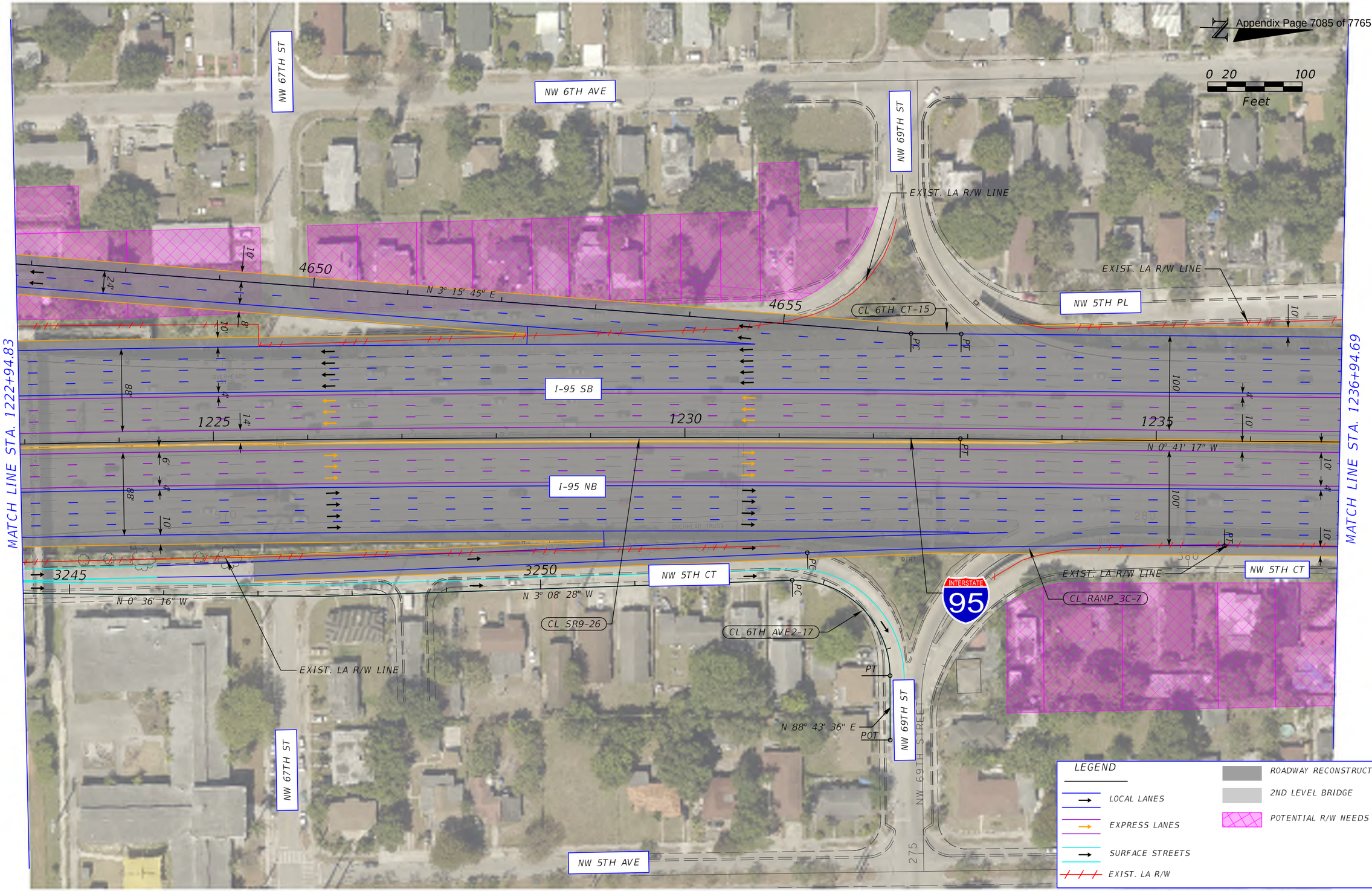

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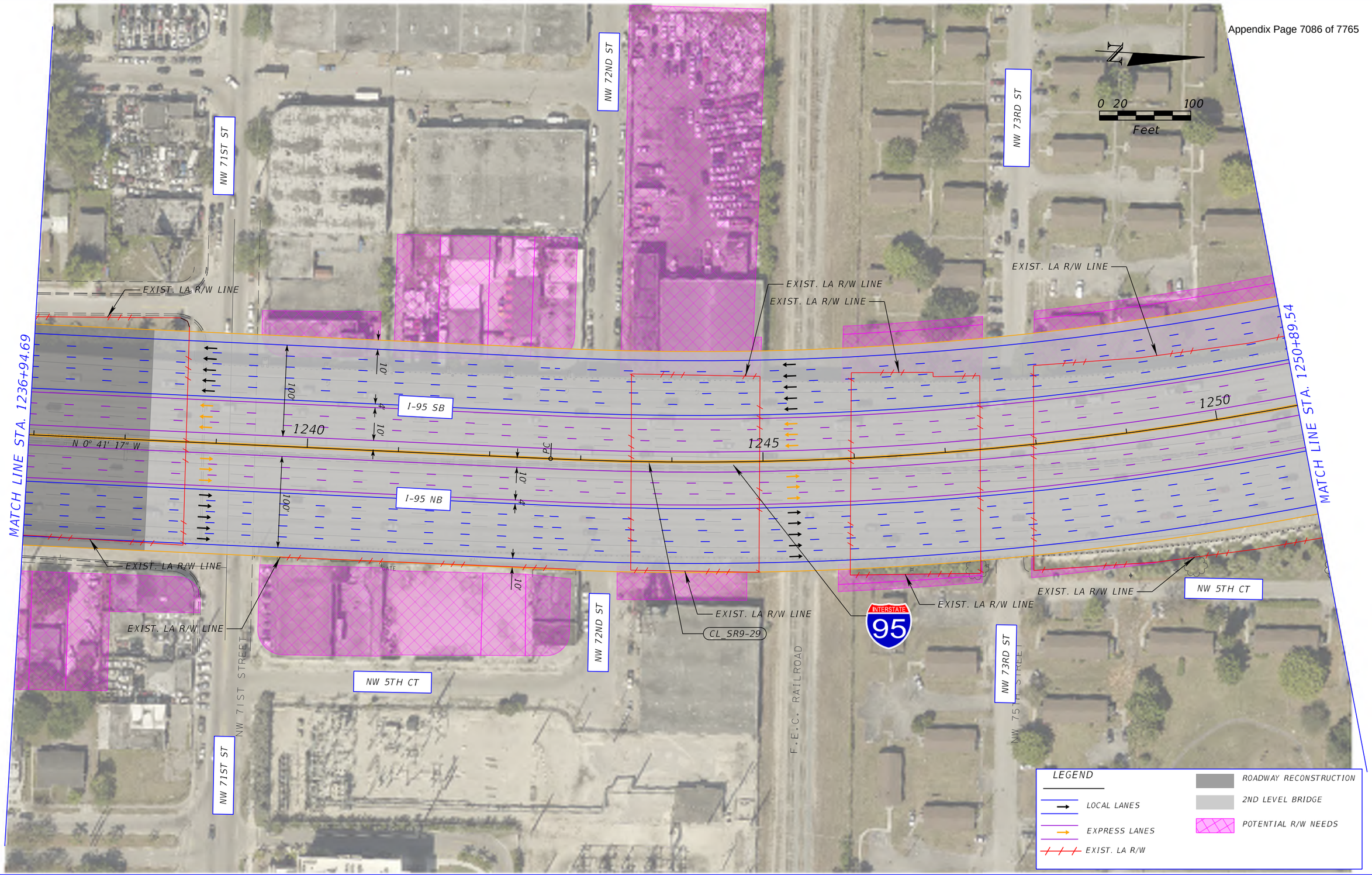

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ROADWAY PLAN

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

0 20 100
Feet

MATCH LINE STA. 1250+89.54

MATCH LINE STA. 1264+78.10

NW 75TH ST

NW 77TH ST

INTERSTATE 95

℄ CONST. RAMP 3D

EXIST. LA R/W LINE

CL_RAMP_3D-1

CL_RAMP_3D-4

CL_SR9-32

CL_SR9-29

CL_6TH AVE3-1

I-95 SB

I-95 NB

6010

1255

1260

3310

N 16° 55' 54" W

N 2° 32' 26" W

PC

PT

POT

OVERHEAD TRUSS

LEGEND

- LOCAL LANES
- EXPRESS LANES
- SURFACE STREETS
- EXIST. LA R/W
- ROADWAY RECONSTRUCTION
- 2ND LEVEL BRIDGE
- POTENTIAL R/W NEEDS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

0 20 100
Feet

MATCH LINE STA. 1265+00.00

MATCH LINE STA. 1264+78.10

MATCH LINE STA. 1265+00.00

MATCH LINE STA. 1278+77.75

EXIST. LA R/W LINE

NW 79TH AVE

N 88° 11' 55" E 420'

6015

N 2° 32' 26" W

PT

CL_RAMP_3D-4

CL_6TH_CT2-5

CL_SR9-32

INTERSTATE 95

6020

NW 6TH CT

N 1° 59' 03" W

36'

NW 81ST ST

36'

PC

PT

520

CL_RAMP_3E-1

PRC

℄ CONST. RAMP 3E

CL_RAMP_3E-2

10'

24'

8'

10'

36'

N 88° 17' 32" E

4520

I-95 SB

88'

4'

10'

1270

1265

1275

N 3° 35' 21" W

I-95 NB

88'

10'

4'

DIRT

GRASS

GRASS

10'

6'

CL_RAMP_3F-1

1420

15'

PC

3315

3320

3325

℄ CONST. RAMP 3F

N 1° 20' 16" W

N 1° 58' 02" W

N 2° 35' 58" W

N 2° 35' 58" W

12'

POT

EXIST. LA R/W LINE

CL_RAMP_3F-4

CL_6TH_AVE3-1

EXIST. LA R/W LINE

NW 6TH AVE

EXIST. LA R/W LINE

N 88° 34' 01" E 425'

24'

36'

12'

NW 79TH AVE

NW 81ST ST

48'

POT

LEGEND

- LOCAL LANES
- EXPRESS LANES
- SURFACE STREETS
- EXIST. LA R/W
- ROADWAY RECONSTRUCTION
- 2ND LEVEL BRIDGE
- POTENTIAL R/W NEEDS

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

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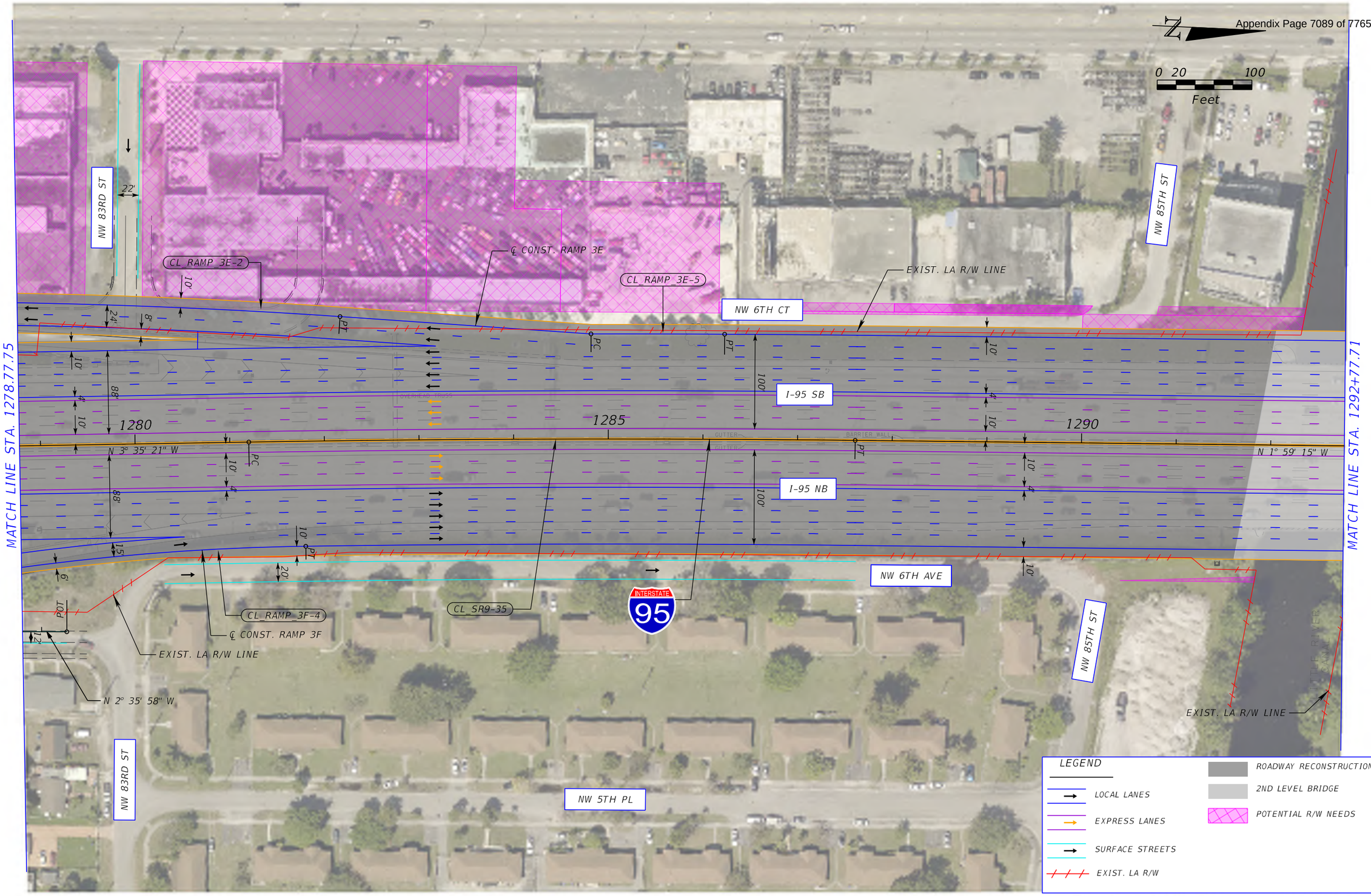

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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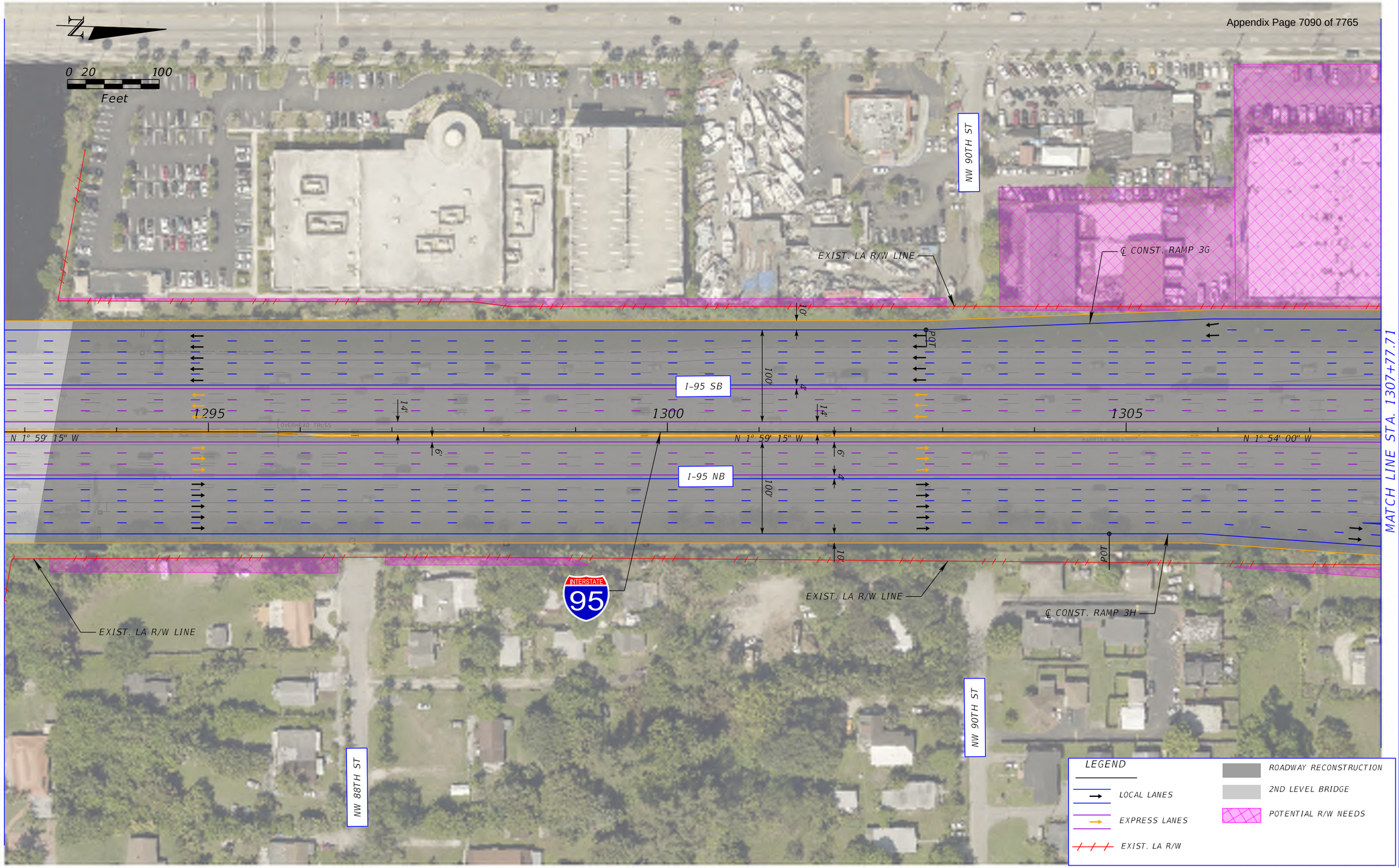

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STATE OF FLORIDA
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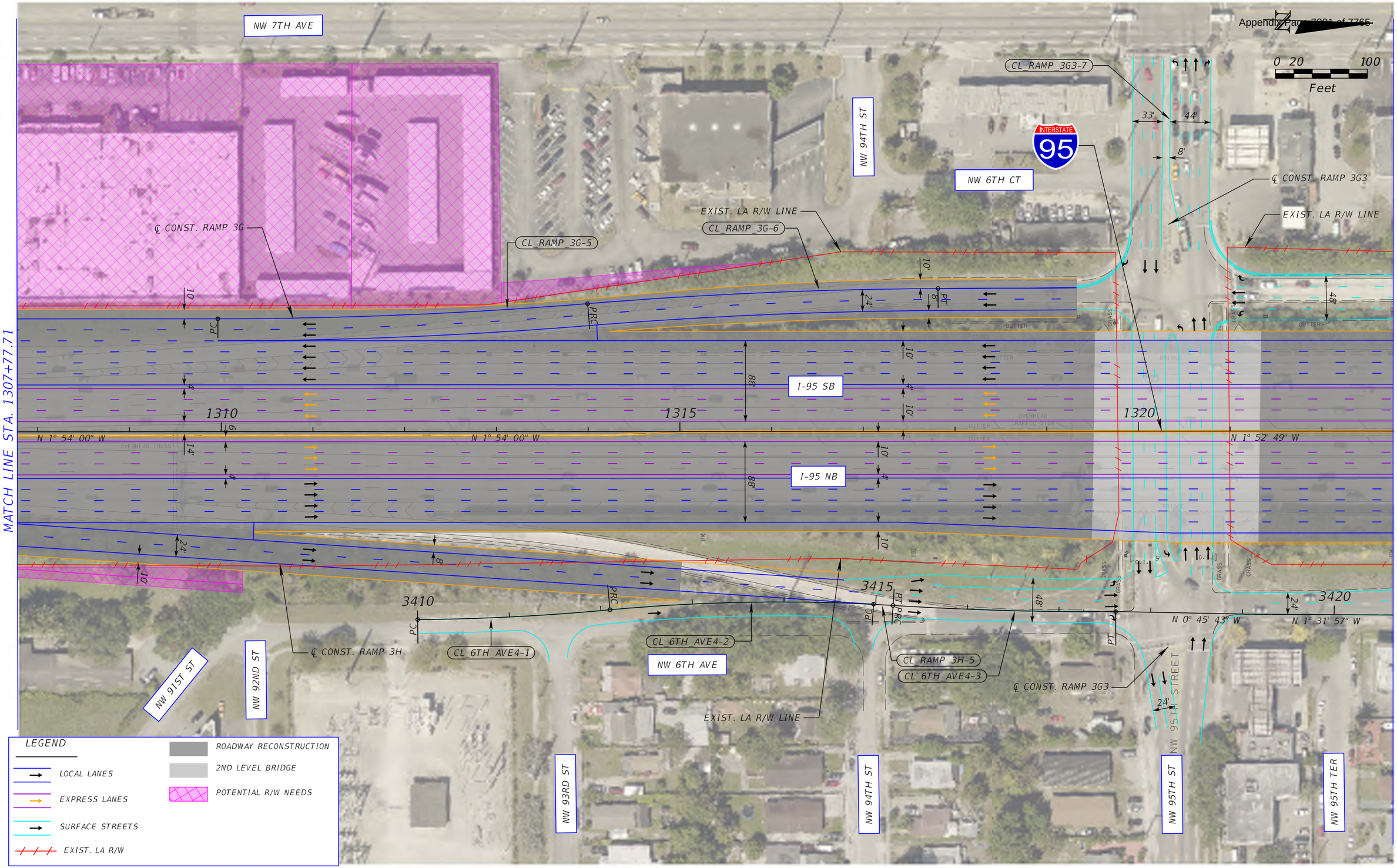

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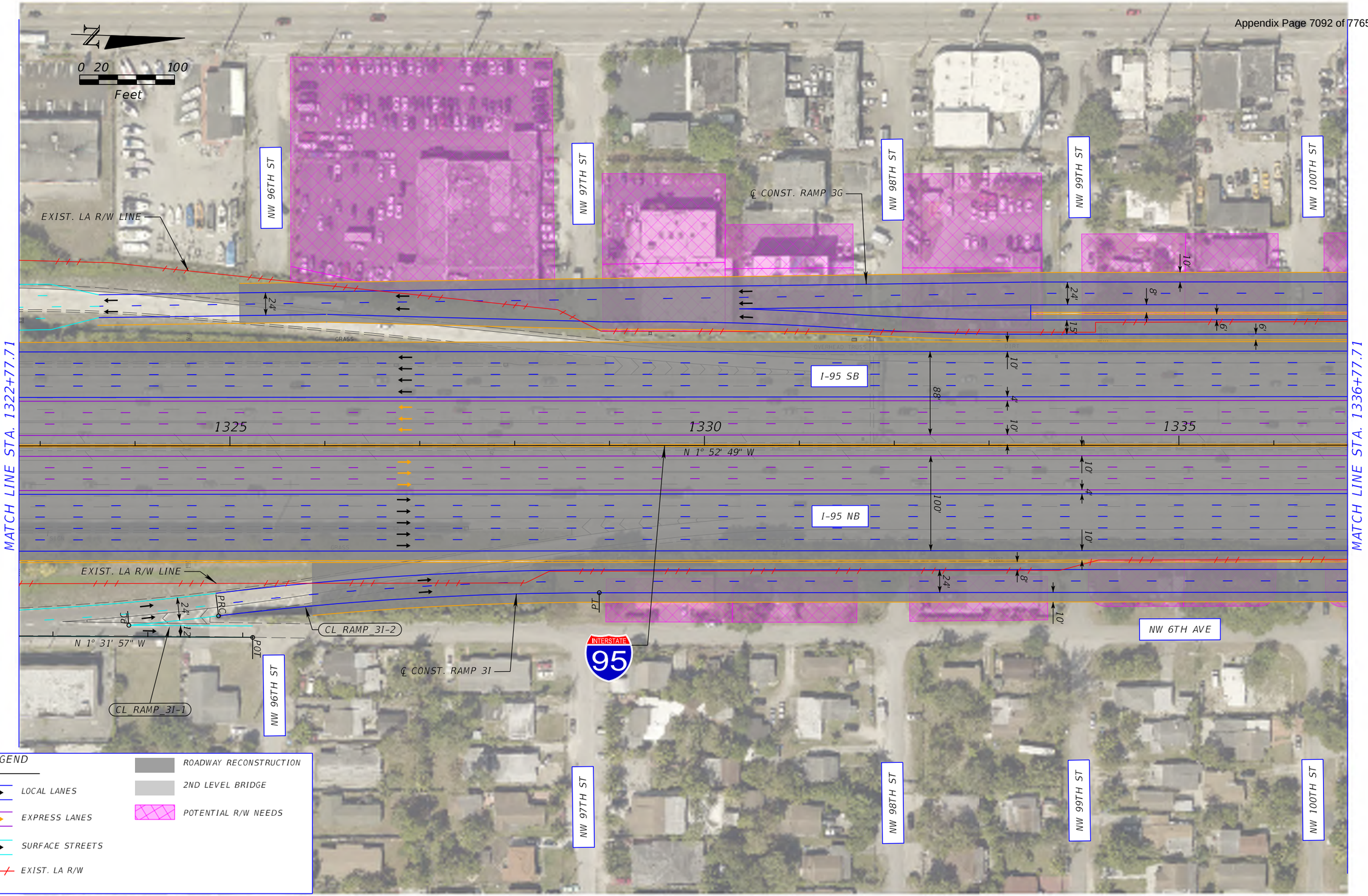

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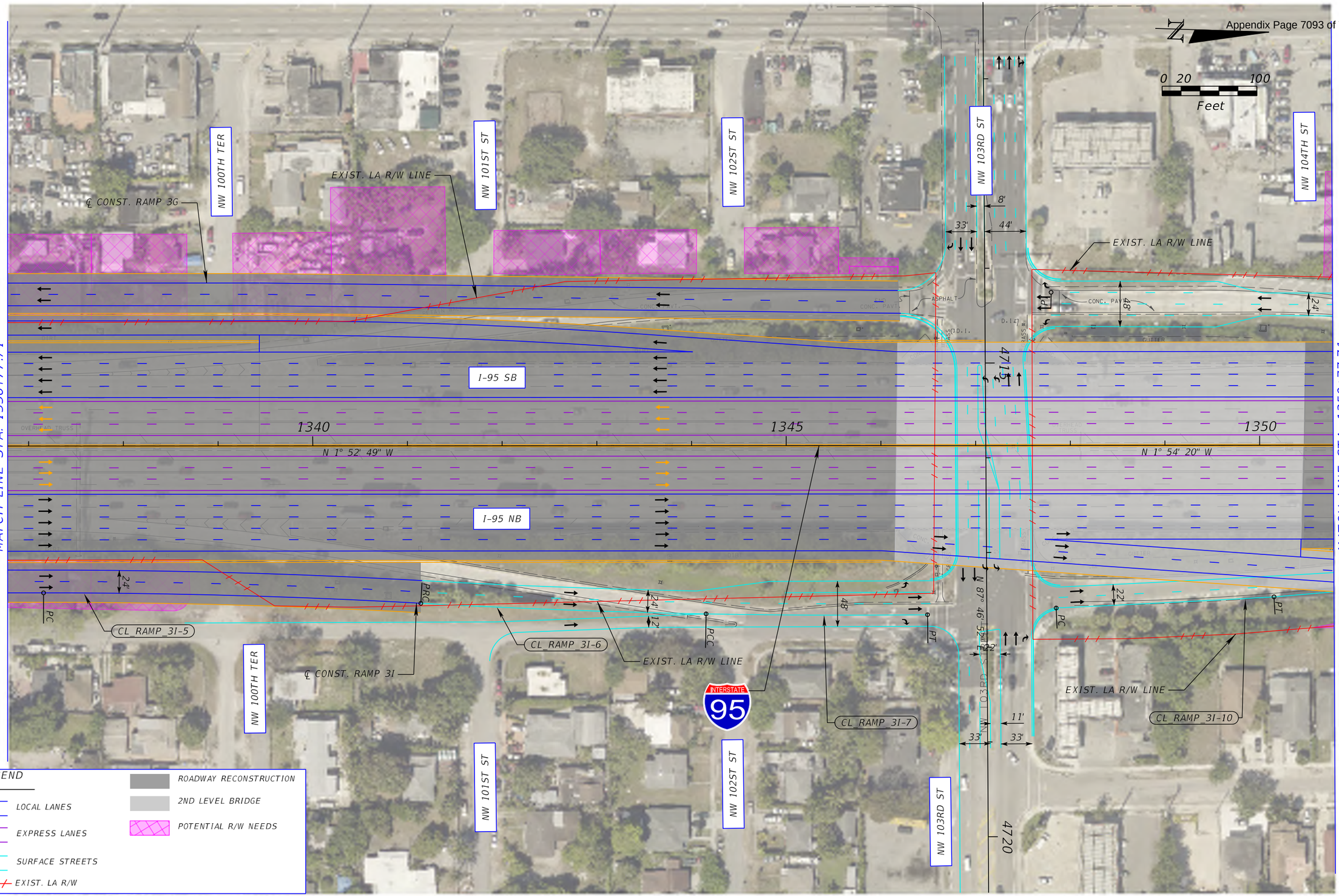

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STATE OF FLORIDA
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SR 9A	MIAMI-DADE	414964-6-22-01

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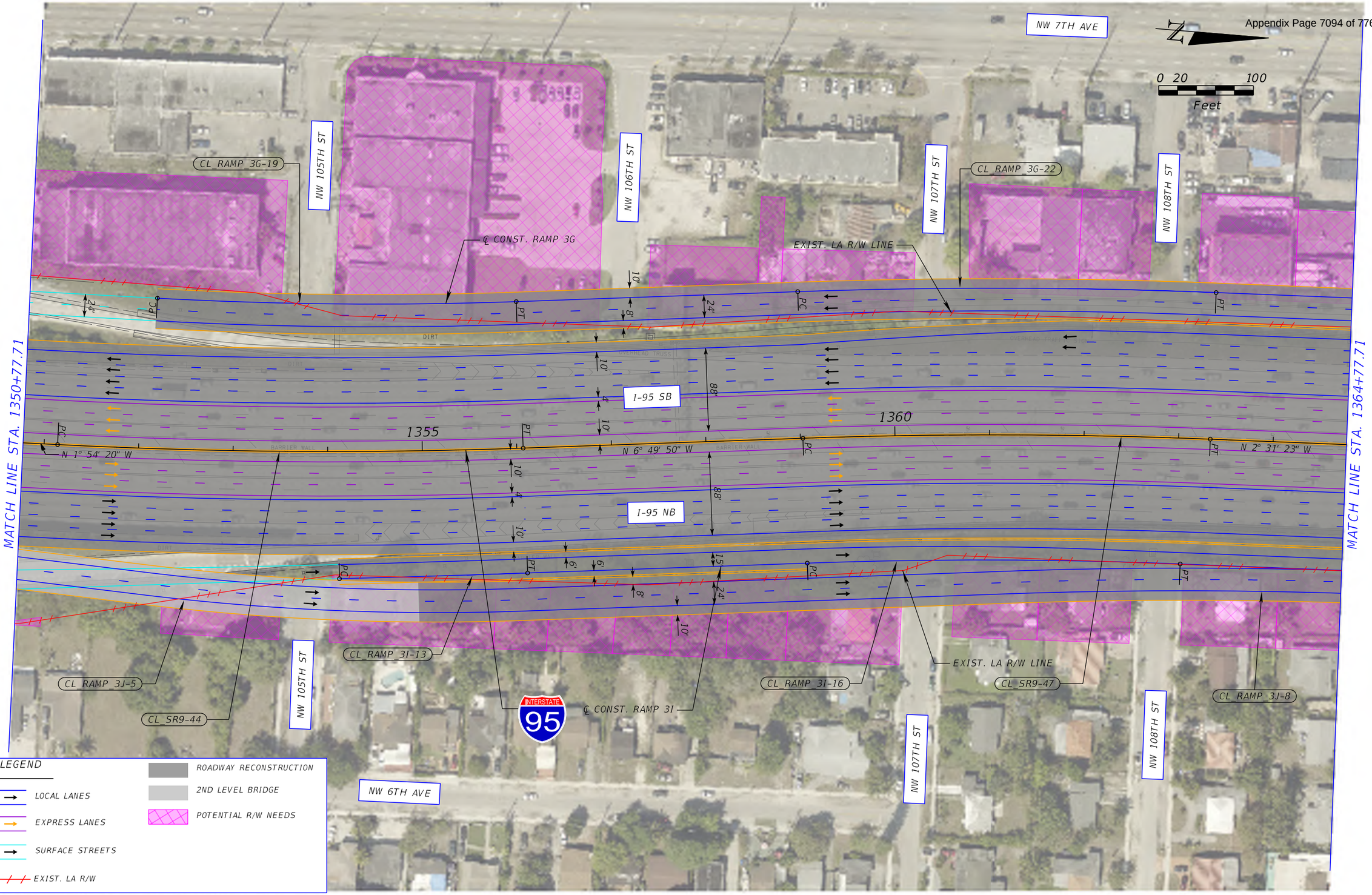

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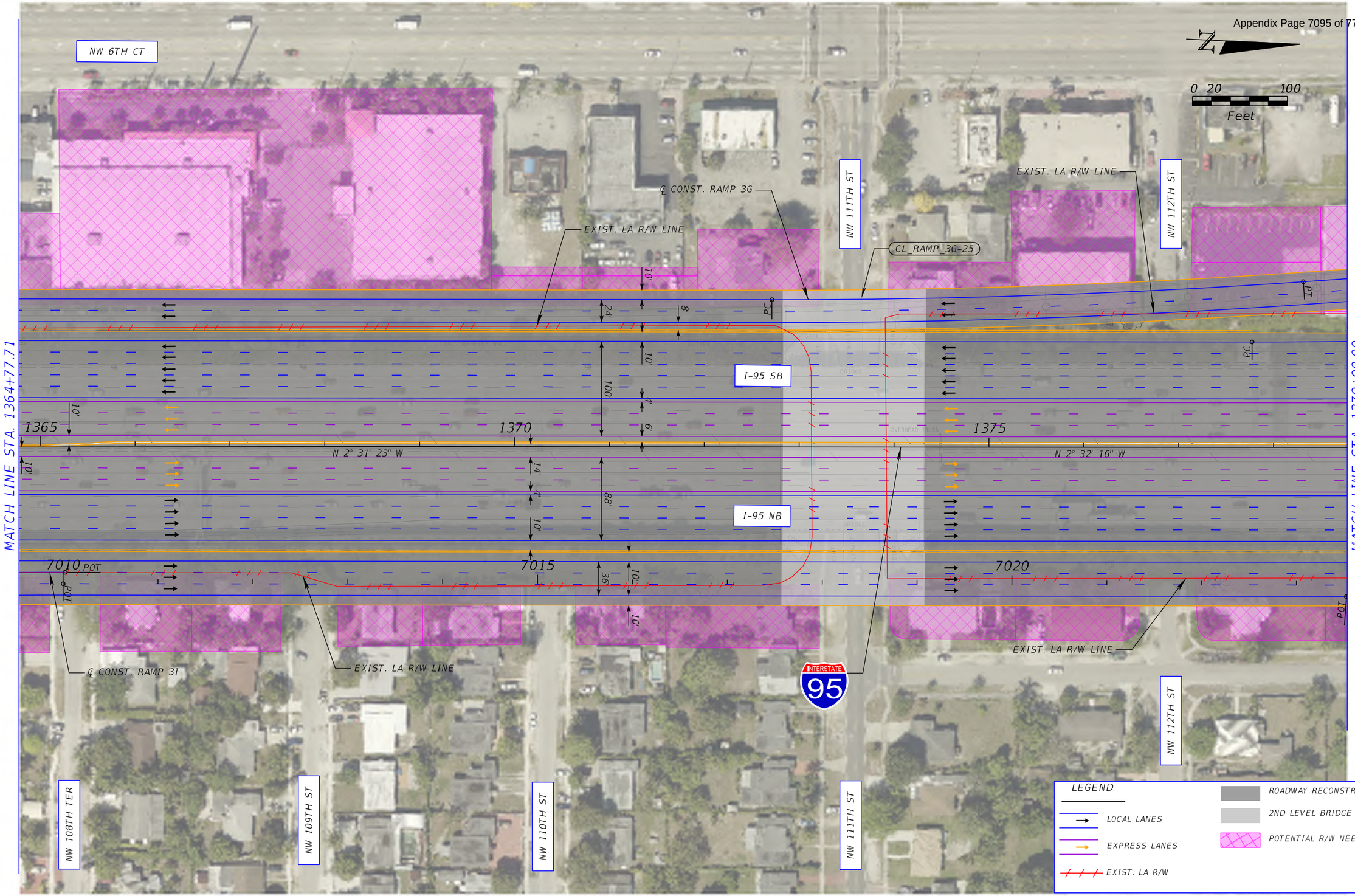

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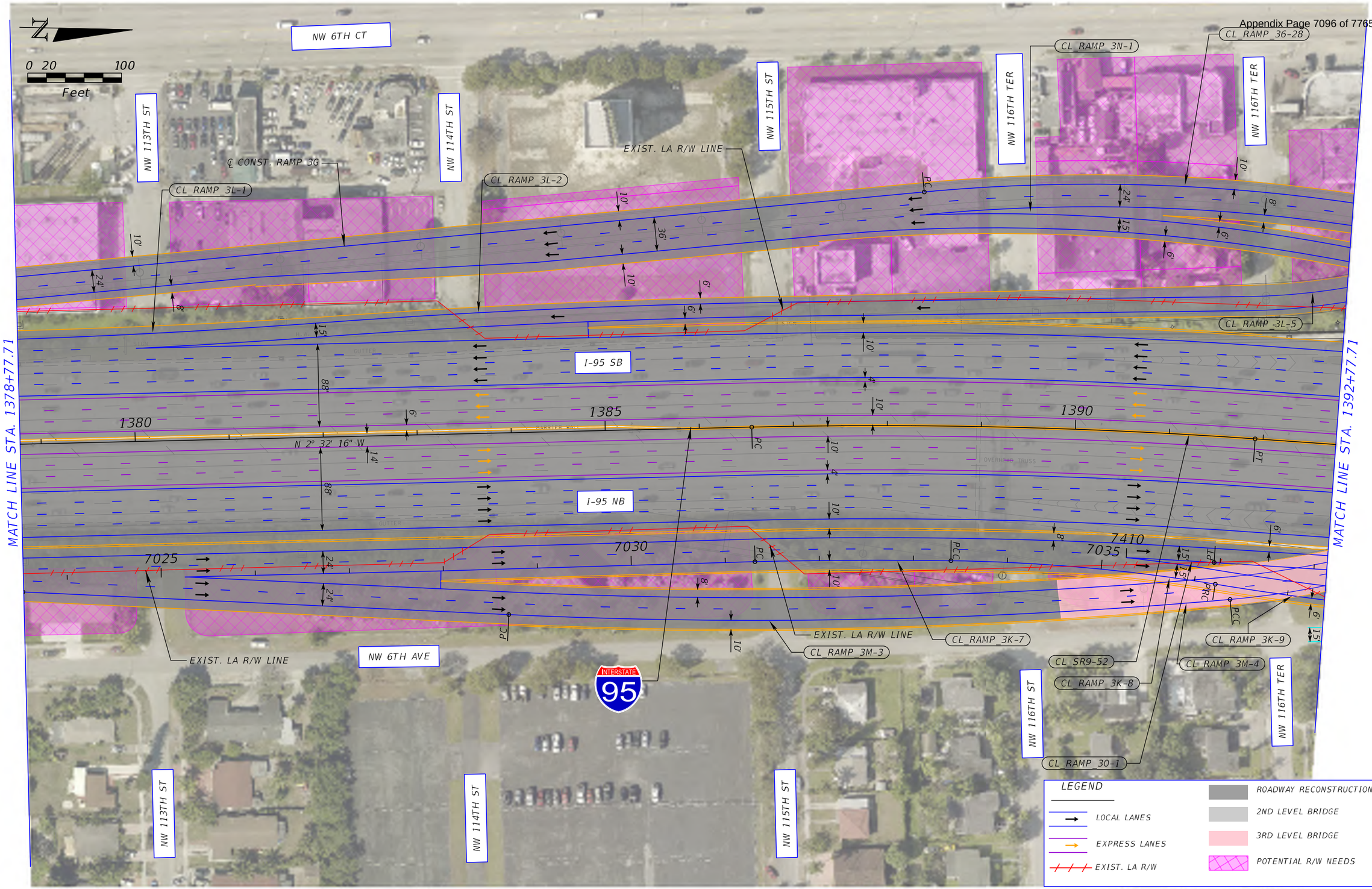

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

MATCH LINE (SEE SHEET NO. 92)

0 20 100
Feet

MATCH LINE STA. 1392+77.71

MATCH LINE STA. 1406+77.58

CL_RAMP_3P-1

NW 120TH ST

NW 121ST ST

℄ CONST. RAMP 3G

EXIST. LA R/W LINE

CL_RAMP_3L-5

NW 118TH ST

CL_RAMP_3N-4

CL_RAMP_3G-31

CL_RAMP_3N-1

I-95 SB

I-95 NB

1395

1400

1405

N 2° 49' 02" E

N 2° 52' 46" W

7415

7040

7420

7425

3430

3435

CL_SR9-55

CL_RAMP_3K-9

CL_RAMP_30-4

CL_RAMP_30-5

CL_RAMP_30-1

NW 117TH ST

NW 118TH ST

NW 119TH STREET

NW 120TH ST

NW 121ST ST

INTERSTATE 95

LEGEND

LOCAL LANES

EXPRESS LANES

SURFACE STREETS

EXIST. LA R/W

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

3RD LEVEL BRIDGE

POTENTIAL R/W NEEDS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
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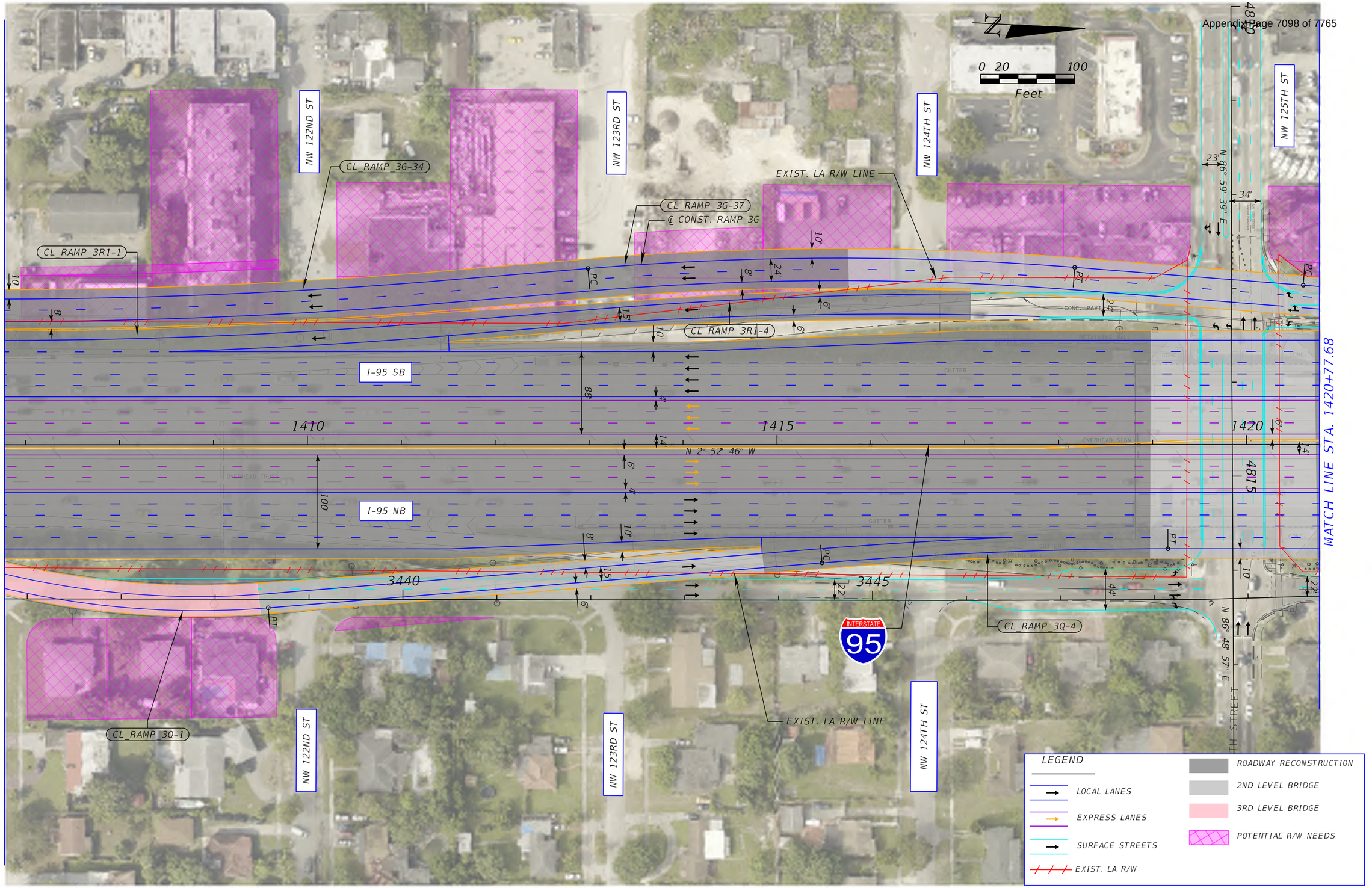

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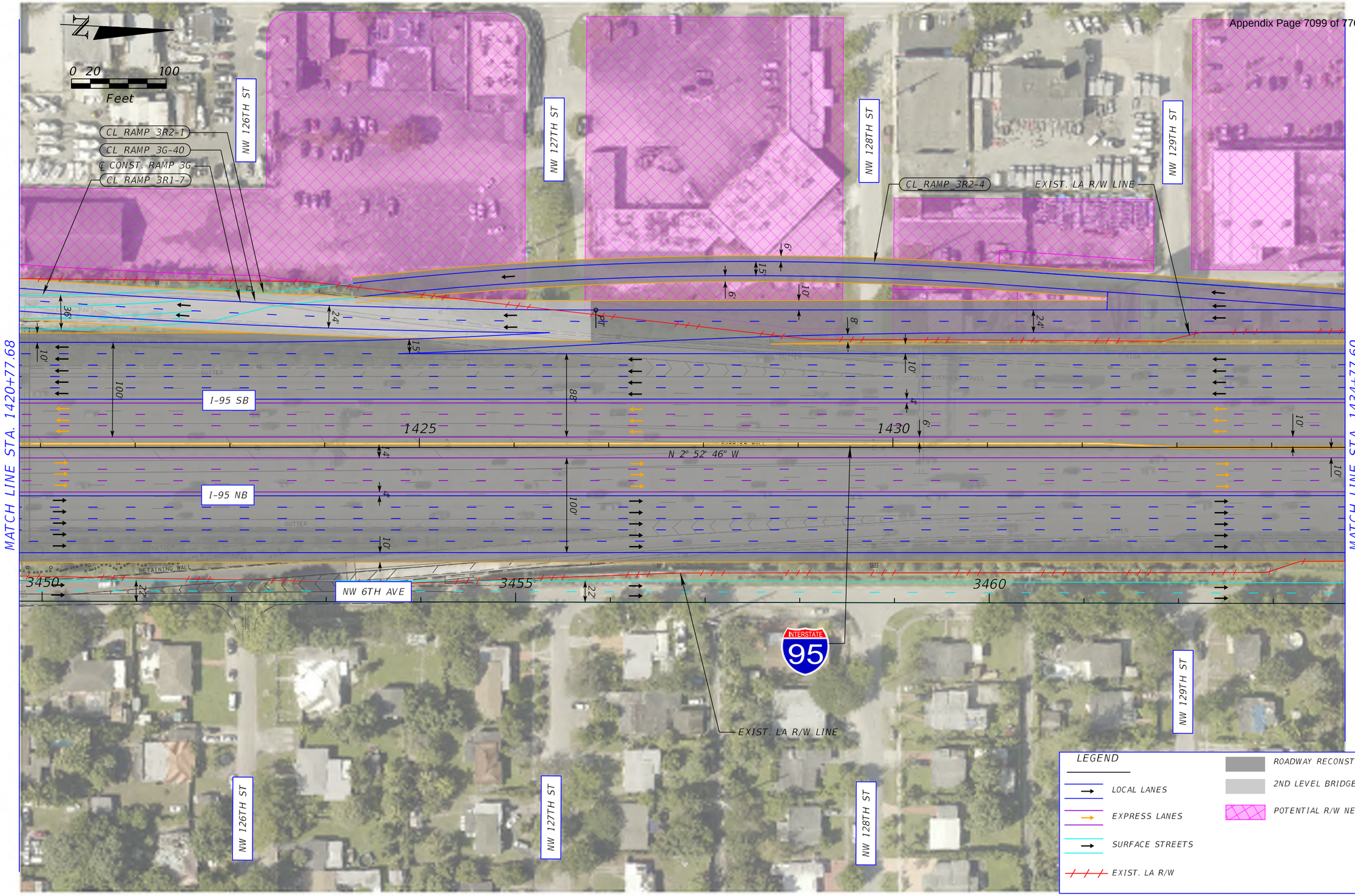

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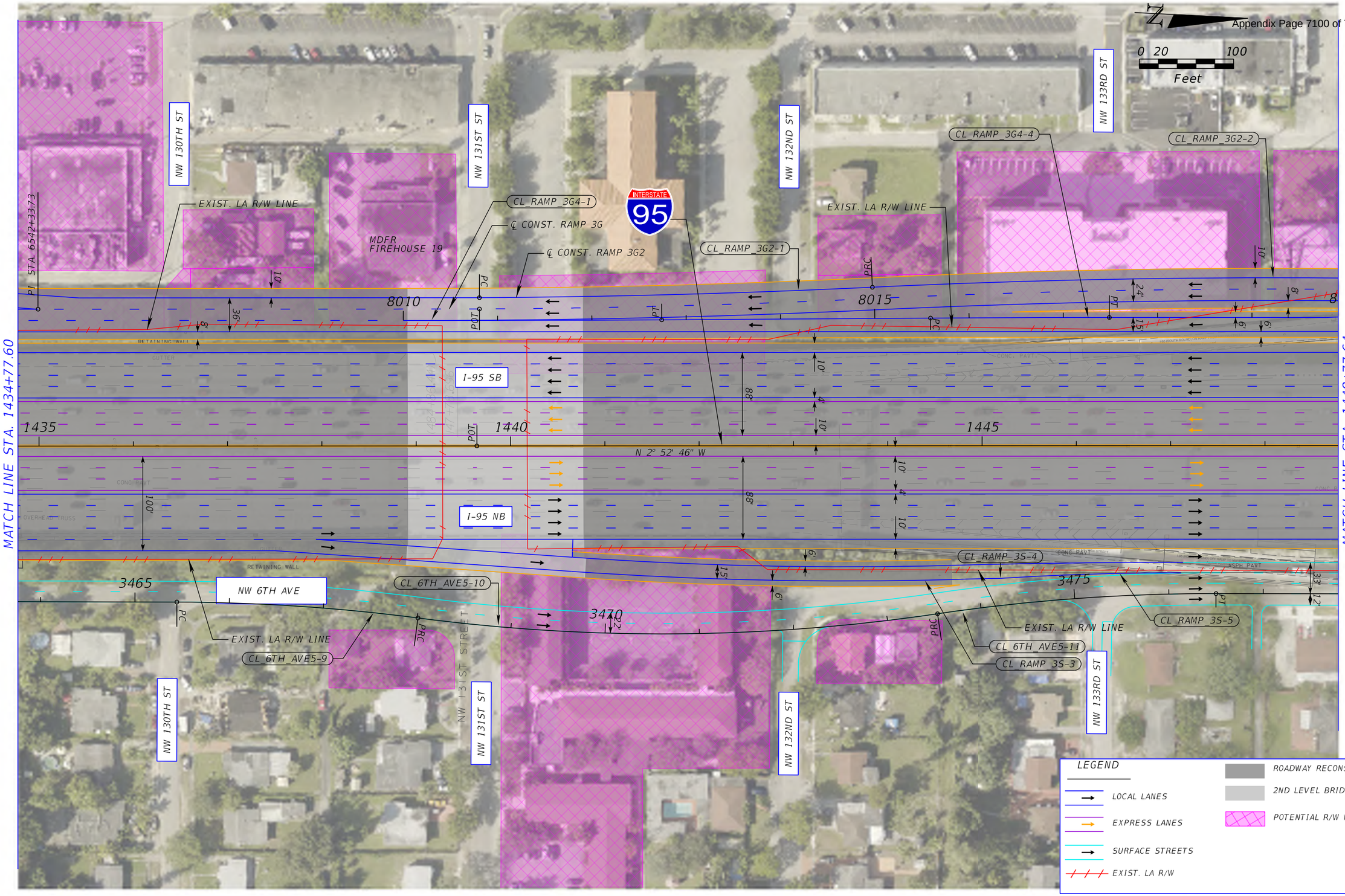

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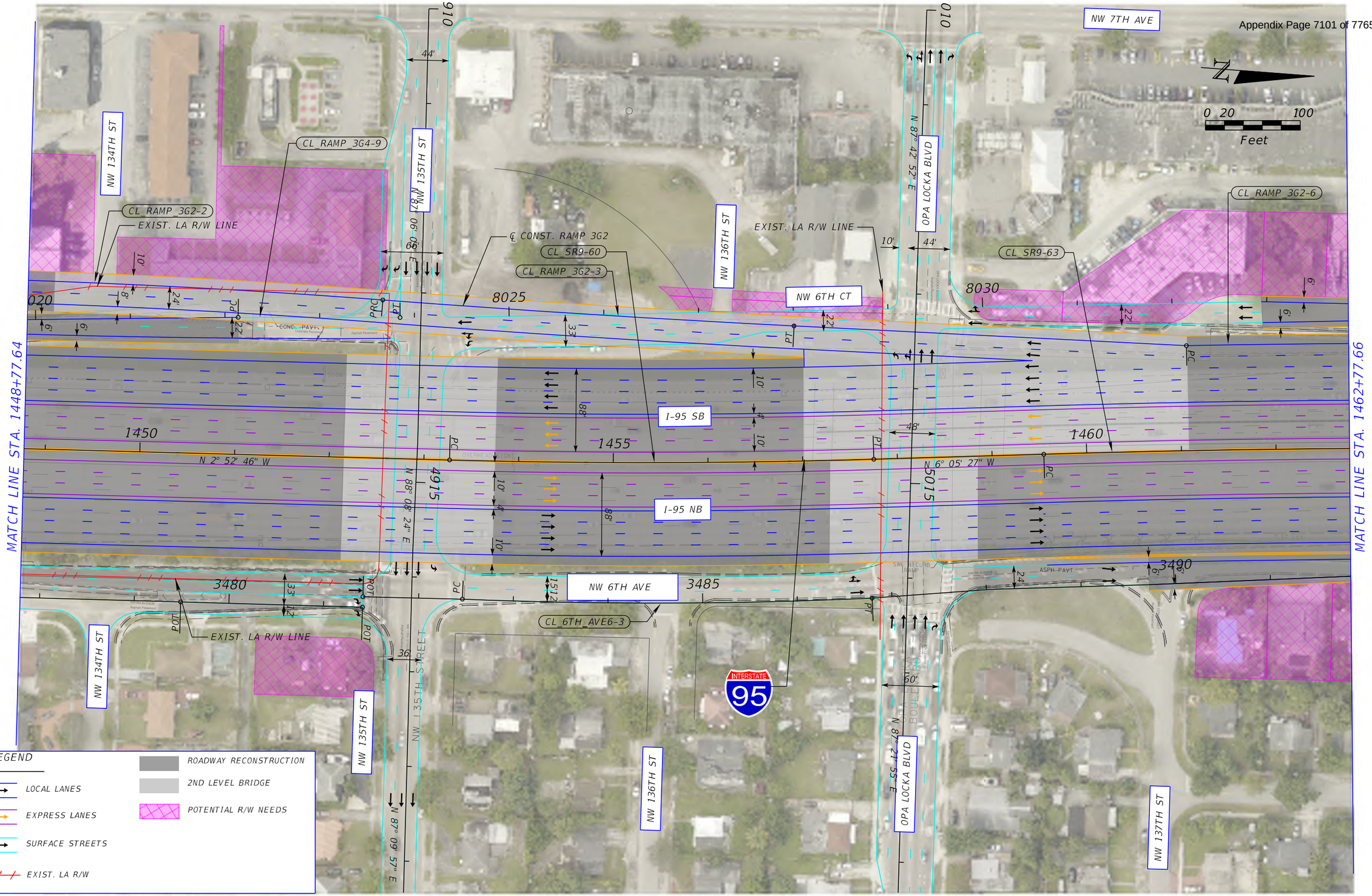

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

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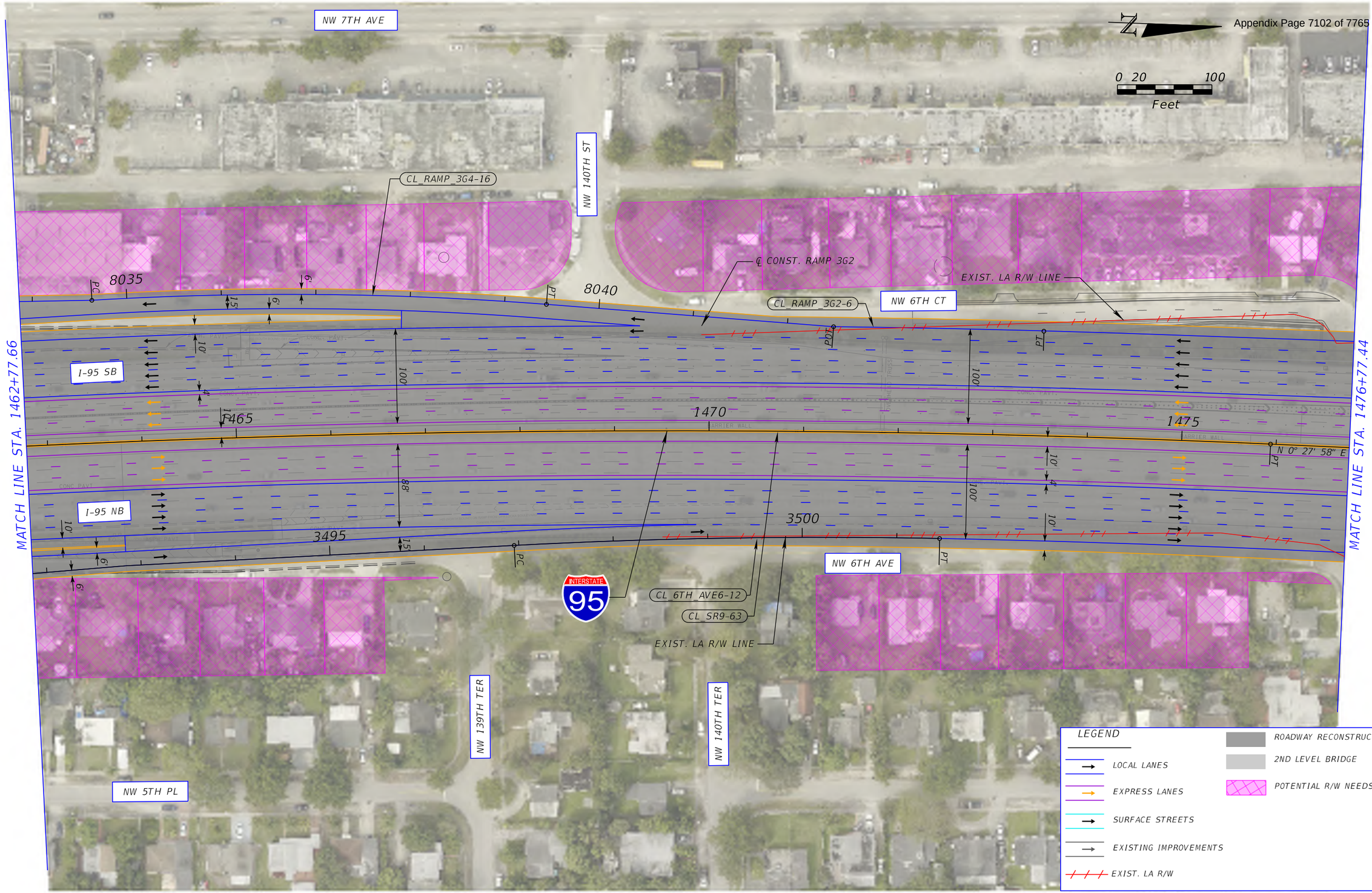

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

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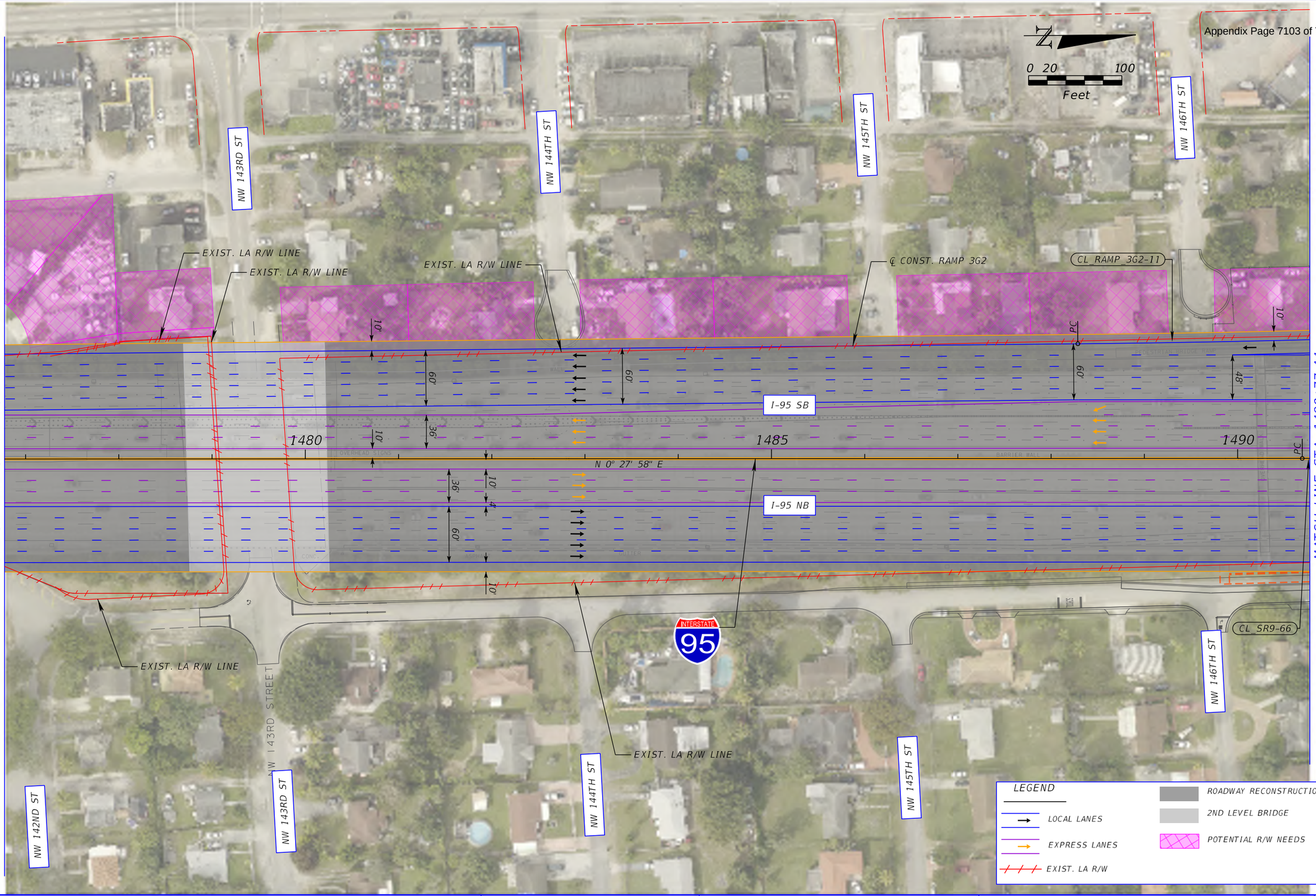

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ROADWAY PLAN

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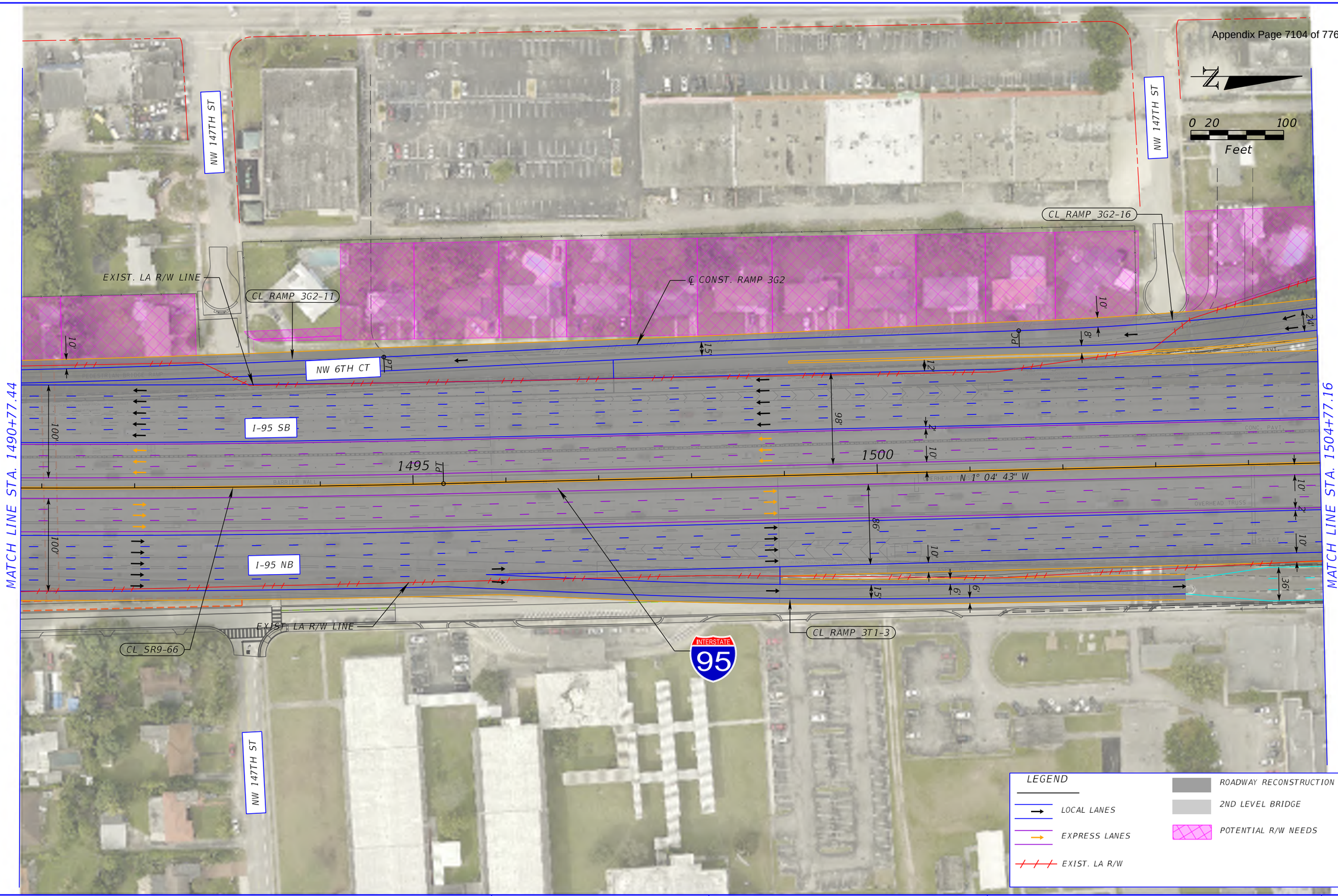

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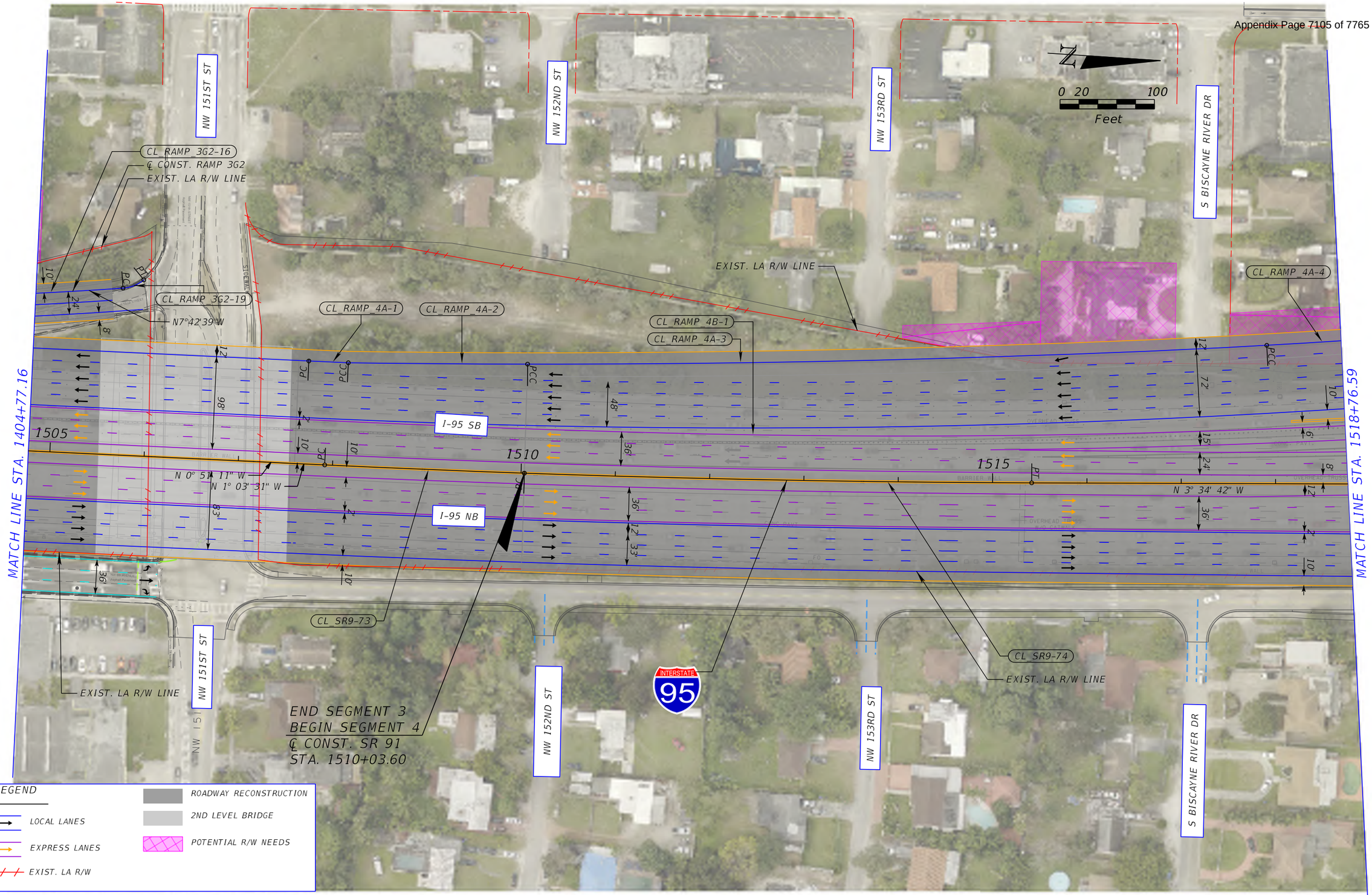
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.



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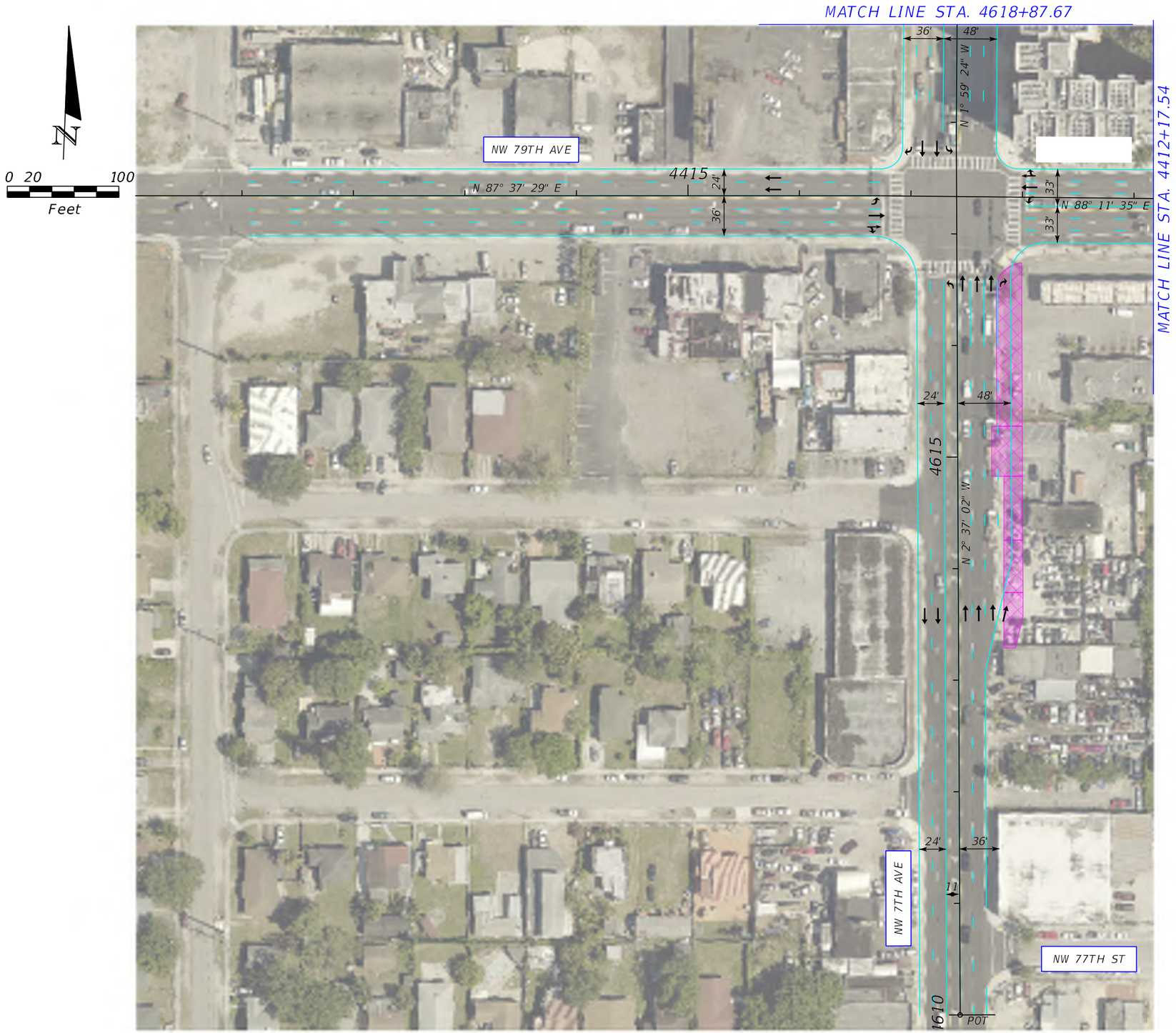

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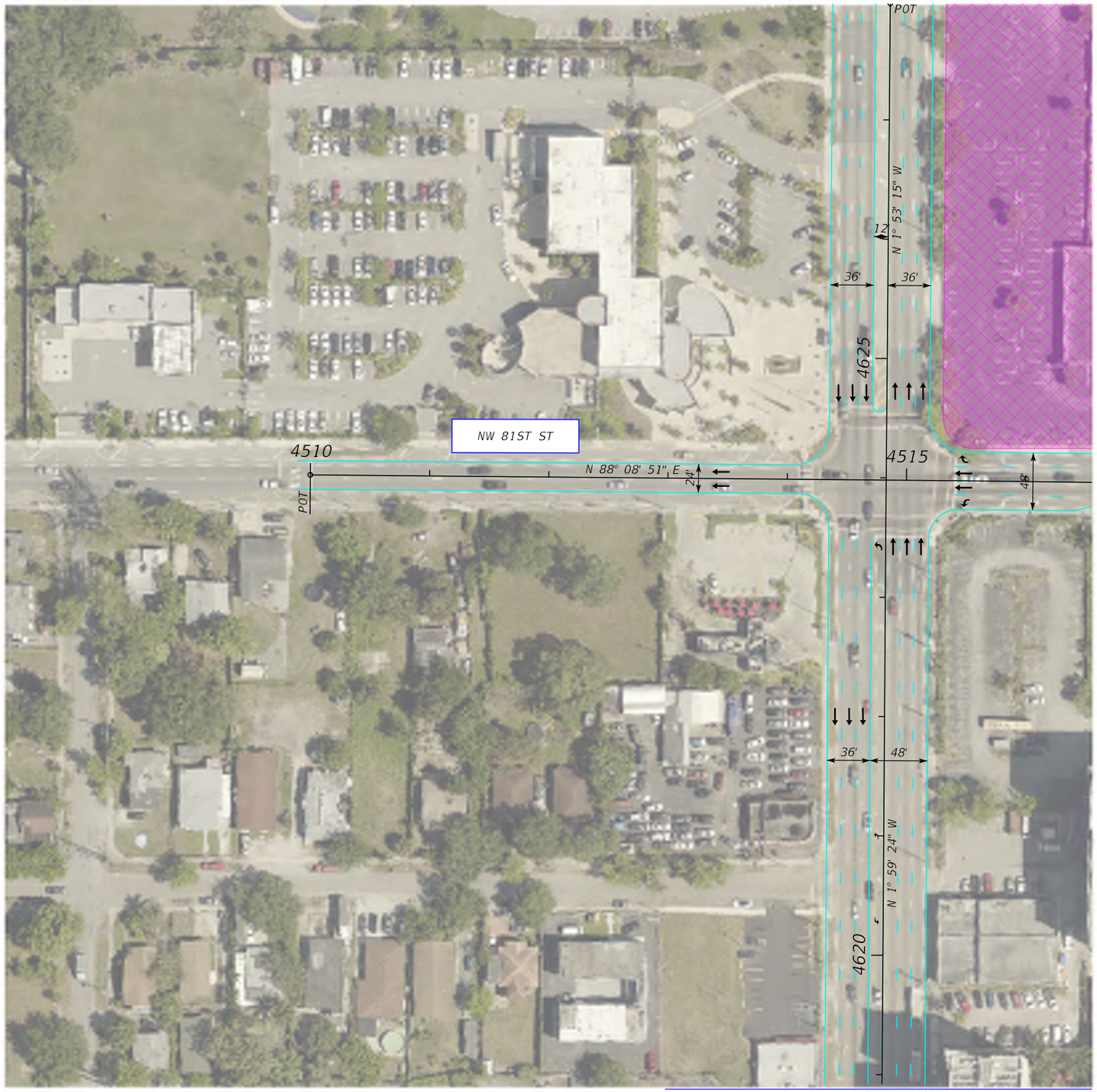

MATCH LINE STA. 4618+87.67

N

0 20 100

Feet

LEGEND

SURFACE STREETS

POTENTIAL R/W NEEDS

REVISIONS			
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STATE OF FLORIDA
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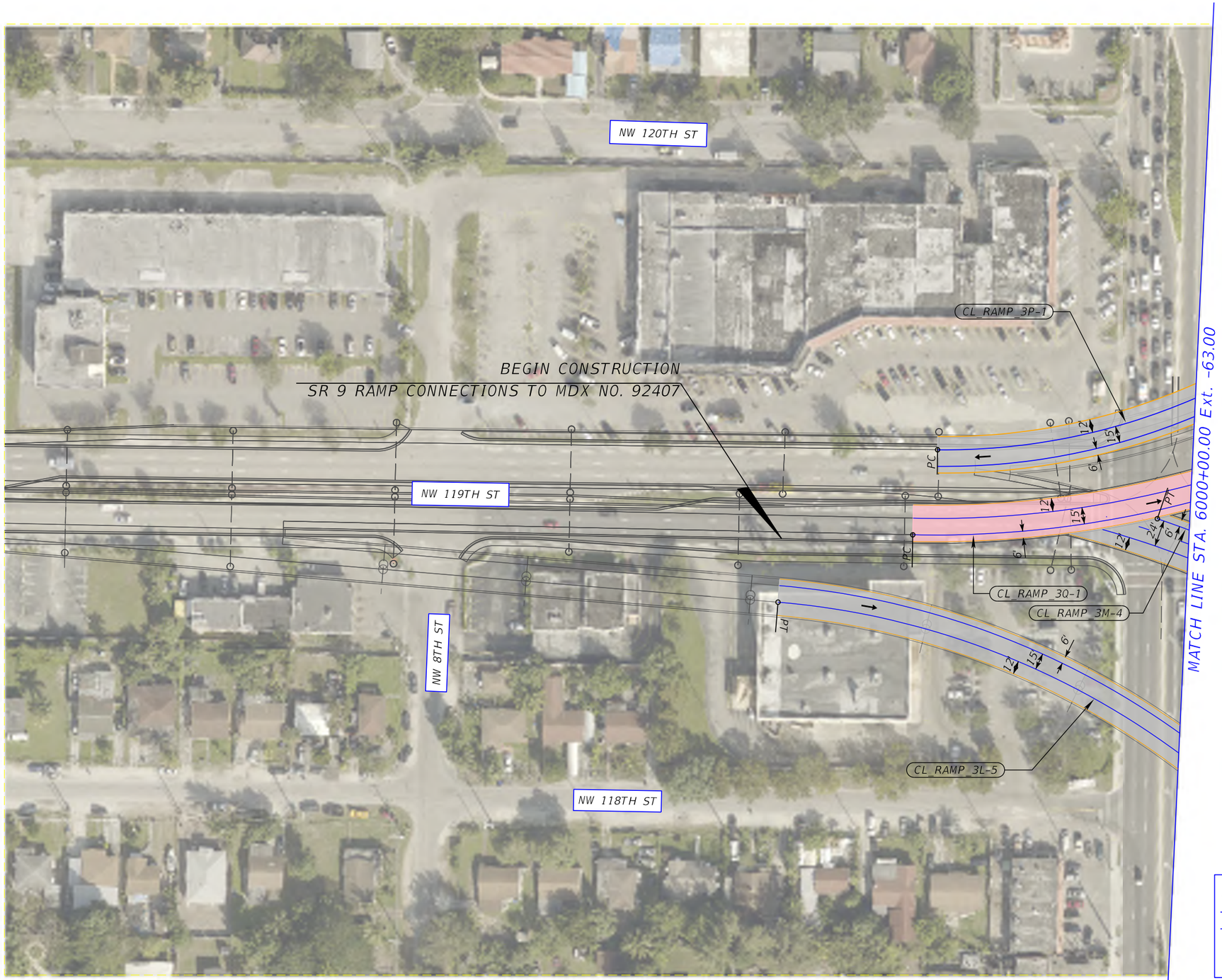

N

0 20 100

Feet

LEGEND

LOCAL LANES

2ND LEVEL BRIDGE

3RD LEVEL BRIDGE

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ROADWAY PLAN

SHEET NO.

SEGMENT 4 PLAN SHEETS

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

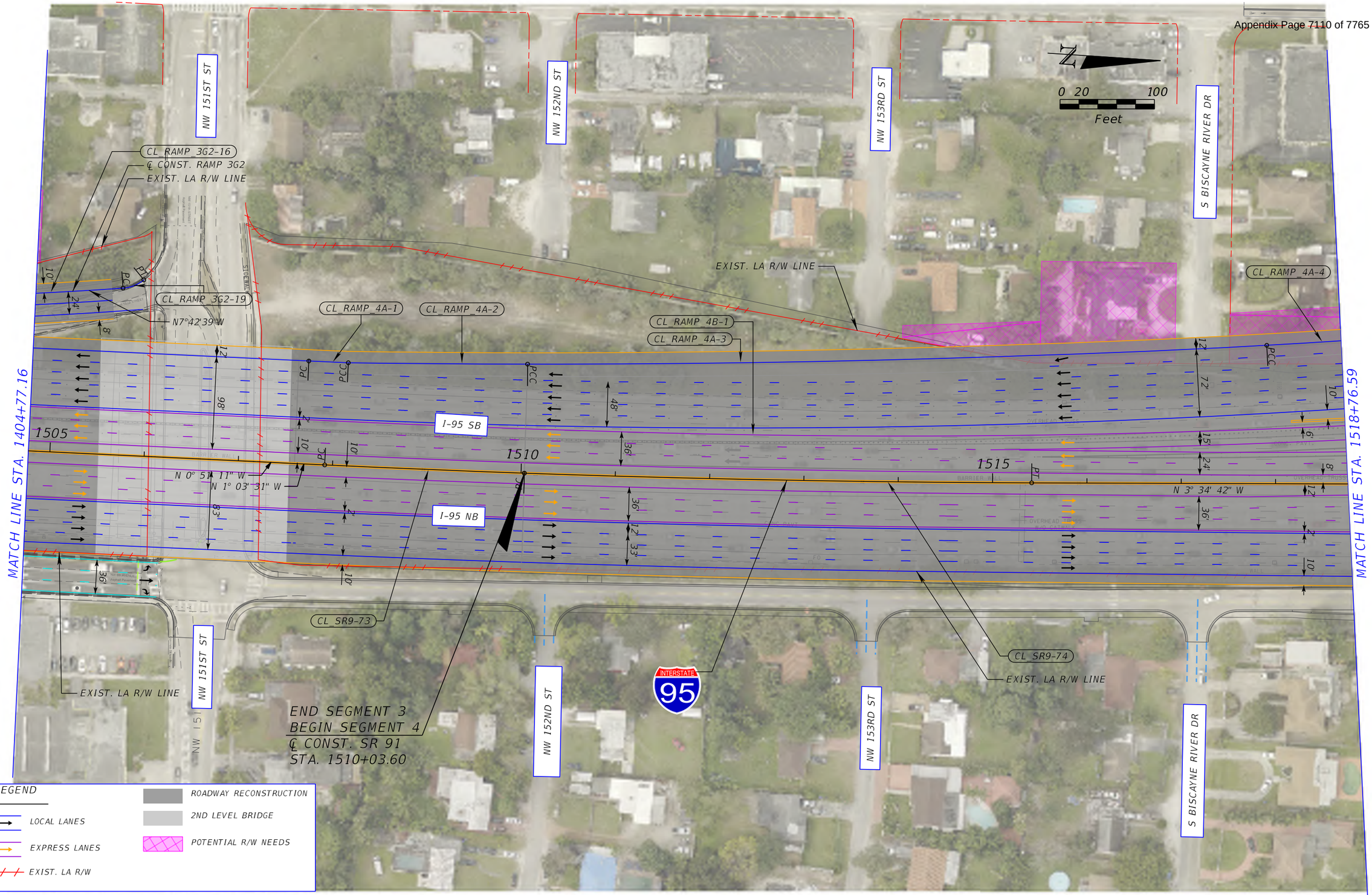
Kimley-Horn and Associates, Inc.
Certificate Of Authorization No. 696
Ramon F. Breton, P.E.
P.E. License No. 53139
189 South Orange Avenue, Suite 1000
Orlando, Florida 32801

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9A	MIAMI-DADE	414964-6-22-01

SEGMENT 4
PLAN SHEET

SHEET NO.



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ROADWAY PLAN

SHEET NO.

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N

0 20 100
Feet

BISCAYNE CANAL

NW 156TH ST

NW 157TH ST

EXIST. LA R/W LINE

EXIST. LA R/W LINE

CL_RAMP_4A-4

CL_RAMP_4C-1

CL_RAMP_4A-5

CL_RAMP_4B-2

CL_RAMP_4B-3

I-95 SB

I-95 SB

I-95 NB

I-95 NB

CL SR9-79

1520

1525

1530

N 4° 45' 54" W

EXIST. LA R/W LINE

EXIST. LA R/W LINE

NW 6TH AVE

CL_RAMP_4D1-1

BISCAYNE CANAL

N BISCAYNE RIVER DR

NW 157TH ST

NW 159TH ST

INTERSTATE 95

MATCH LINE STA. 1518+76.59

MATCH LINE STA. 1532+80.86

LEGEND

LOCAL LANES

EXPRESS LANES

EXIST. LA R/W

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

3RD LEVEL BRIDGE

POTENTIAL R/W NEEDS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
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ROADWAY PLAN

SHEET NO.

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GOLDEN GLADES BUS STATION & PARKING

EXIST. LA R/W LINE

EXIST. R/W LINE

EXIST. LA R/W LINE

EXIST. LA R/W LINE

EXIST. LA R/W LINE

FLORIDA'S TURNPIKE SB

I-95 EXPRESS (TOLL RD) SB

I-95 EXPRESS (TOLL RD) NB

MATCH LINE STA. 1532+80.86

MATCH LINE STA. 1546+72.71

1535

1540

1545

N 13° 05' 11" W

POT

PC

PT

CL_SR9-82

CL_SR9-83

CL_SR9-84

CL_RAMP_4E-3

CL_RAMP_4D1-4

CL_RAMP_4D1-1

GGI

INTERSTATE 95

NW 161ST ST

UNDER CONSTRUCTION

OVERHEAD TRUSS

OVERHEAD SIGN

BARRIER WALL

CONC. PAVT.

CONC.

0 20 100

Feet

LEGEND

LOCAL LANES

EXPRESS LANES

EXISTING IMPROVEMENTS

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

3RD LEVEL BRIDGE

4TH LEVEL BRIDGE

EXIST. LA R/W

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

MATCH LINE STA. 1561+00.00

MATCH LINE STA. 1546+72.71

MATCH LINE STA. 1560+49.16

0 20 100
Feet

CL_RAMP_4F1-3

EXIST. LA R/W LINE

EXIST. LA R/W LINE

1550

1555

1560

CL_SR9-84

CL_RAMP_4E-6

CL_RAMP_4E-3

I-95 EXPRESS TO PALMETTO EXPY

I-95 SB

I-95 NB

OVERHEAD SIGN

BRIDGE

ASPH. PAVT.

CONC. PAVT.

NW 165TH ST

LEGEND

LOCAL LANES

EXPRESS LANES

EXIST. LA R/W

ROADWAY RECONSTRUCTION

2ND LEVEL BRIDGE

3RD LEVEL BRIDGE

4TH LEVEL BRIDGE

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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ROADWAY PLAN

SHEET NO.

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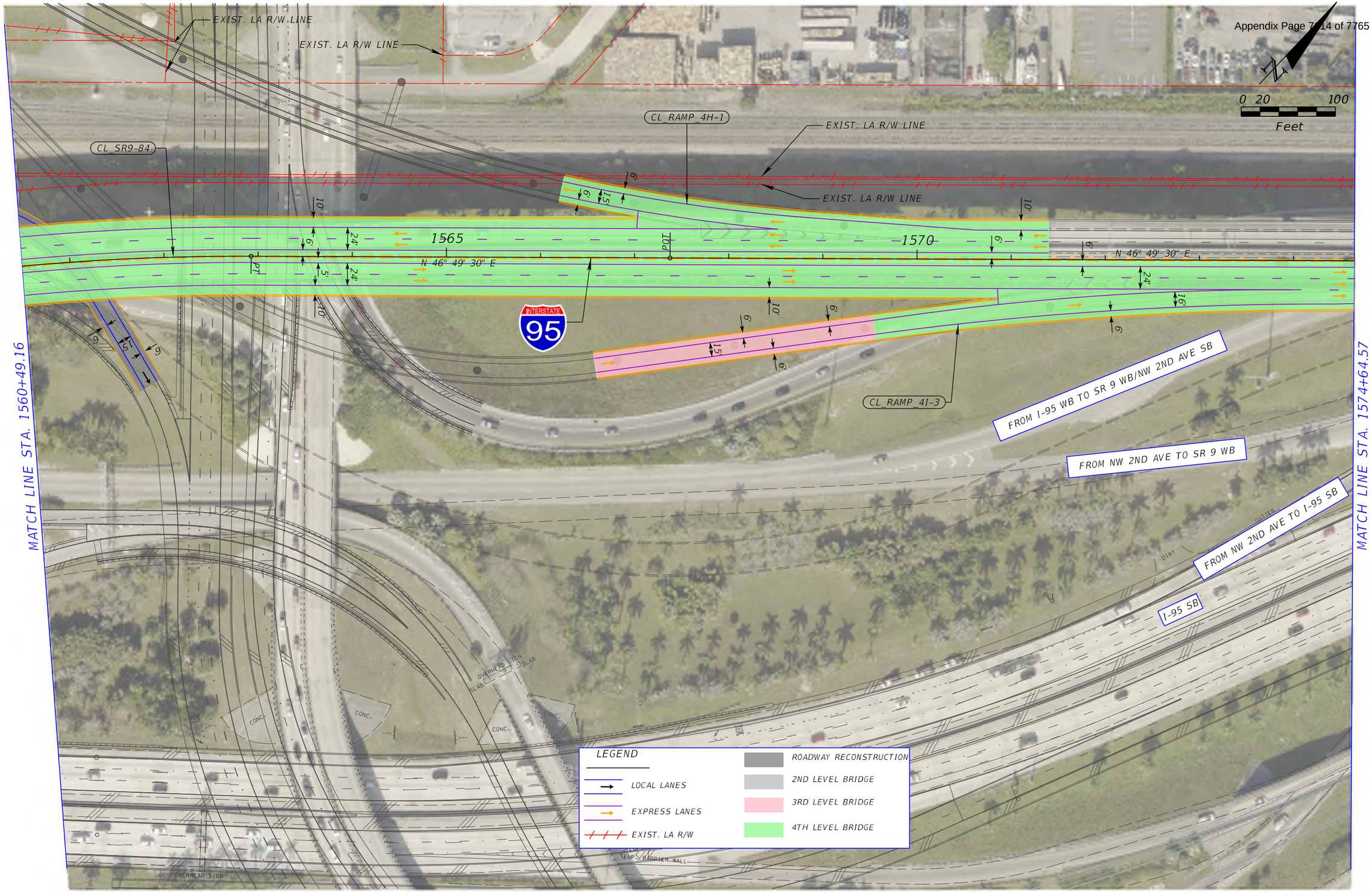

REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 9A	MIAMI-DADE	414964-6-22-01		

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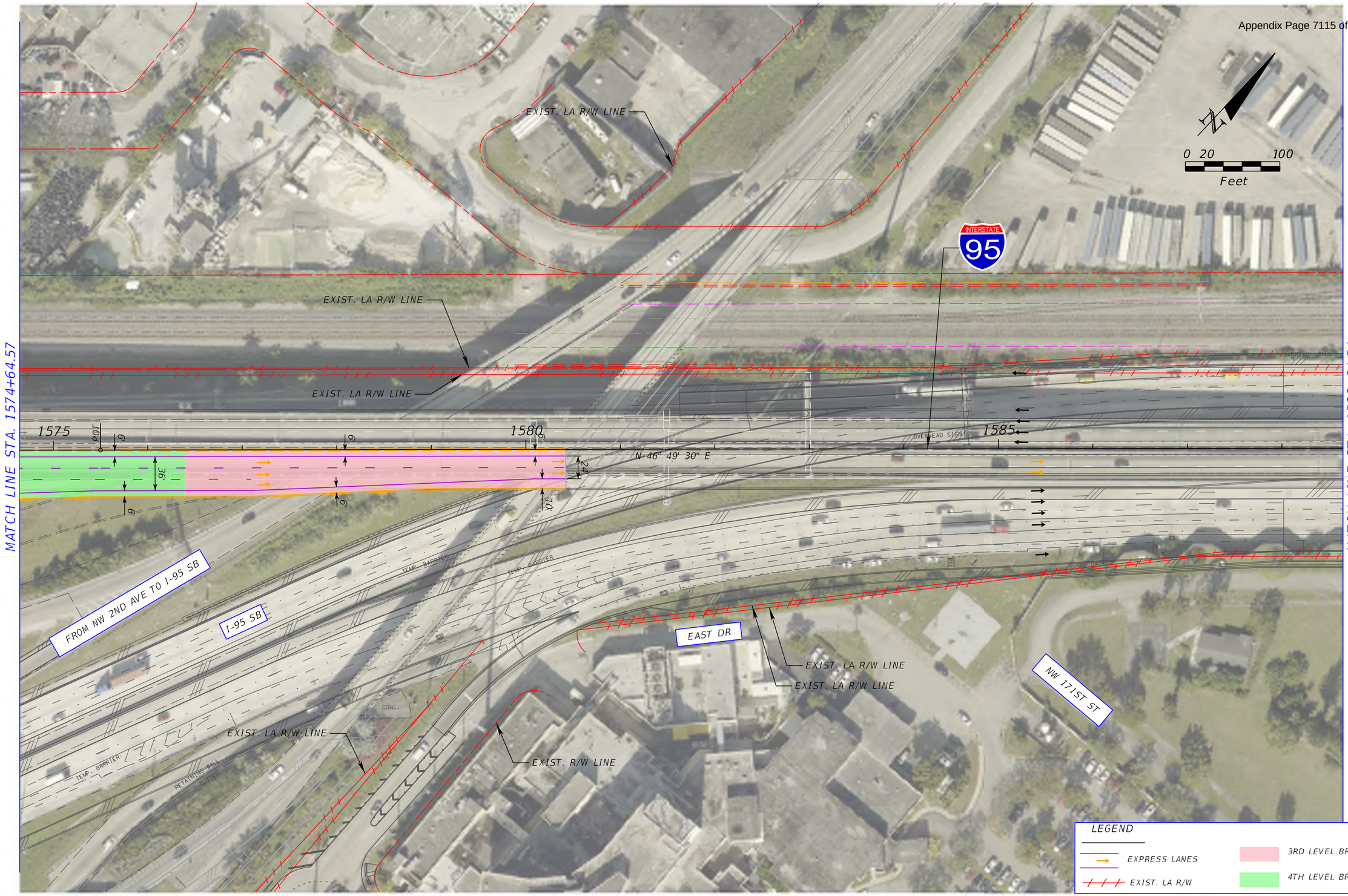

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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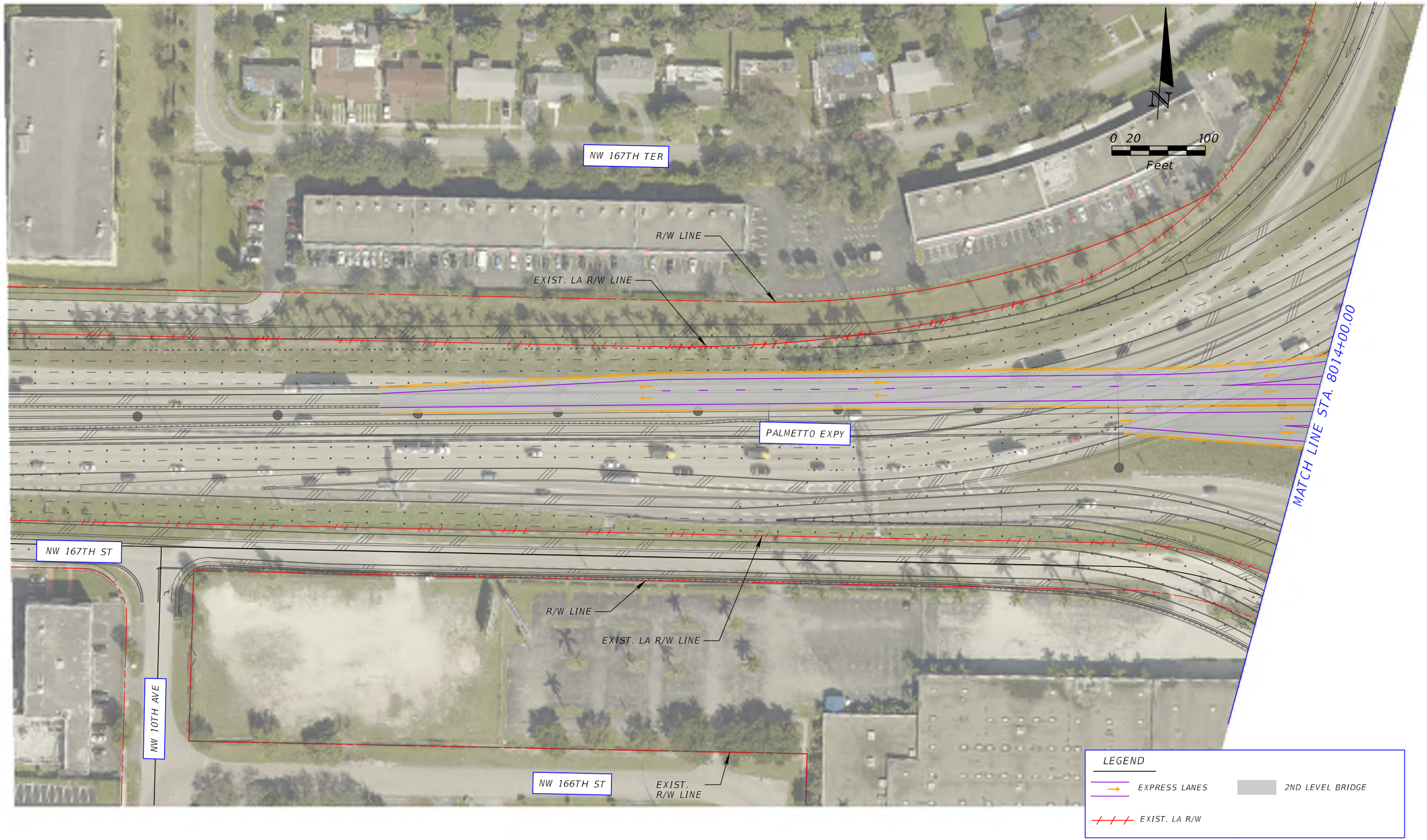

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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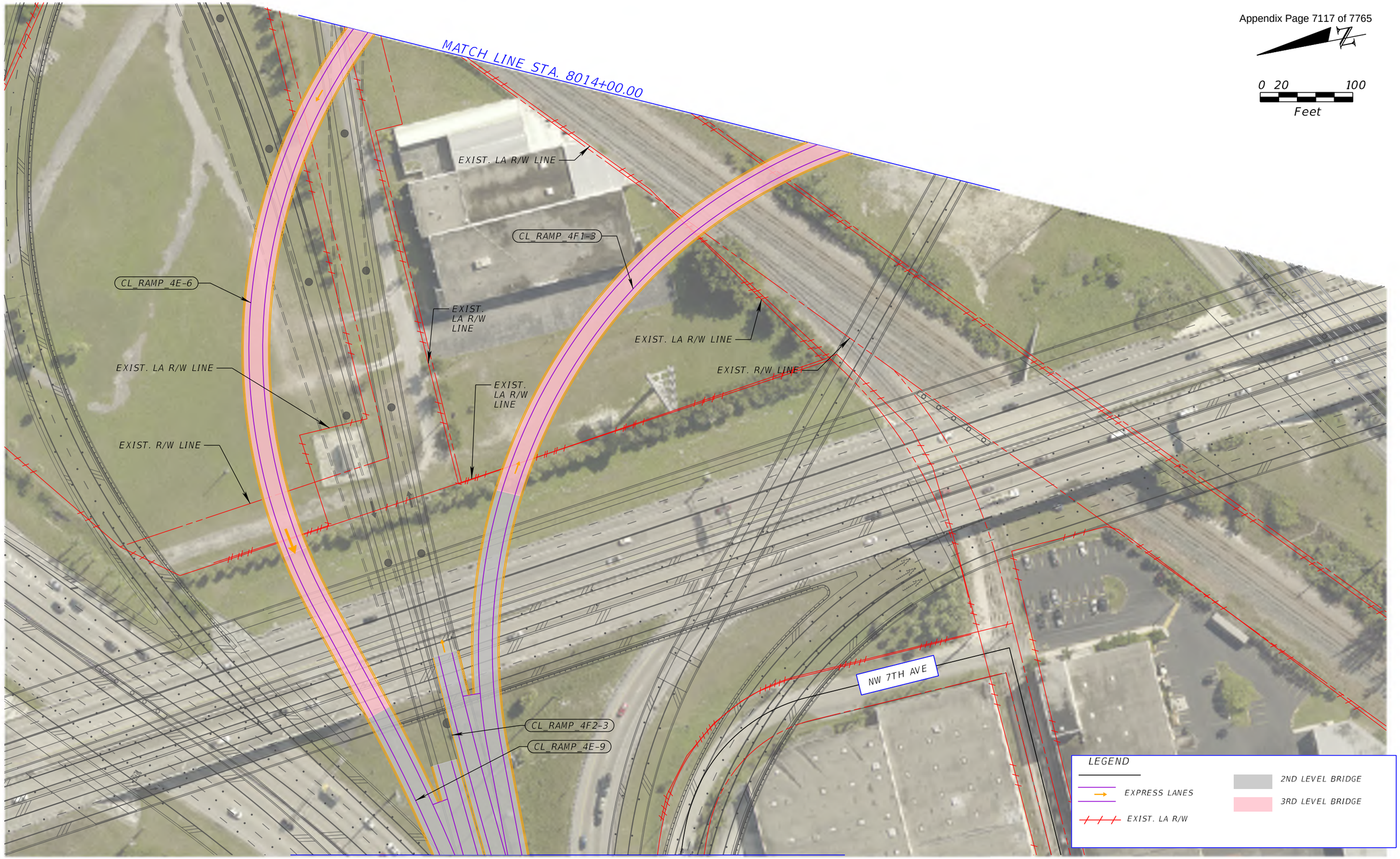

0 20 100
Feet

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
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DEPARTMENT OF TRANSPORTATION

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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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SEGMENT 5 PLAN SHEETS

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

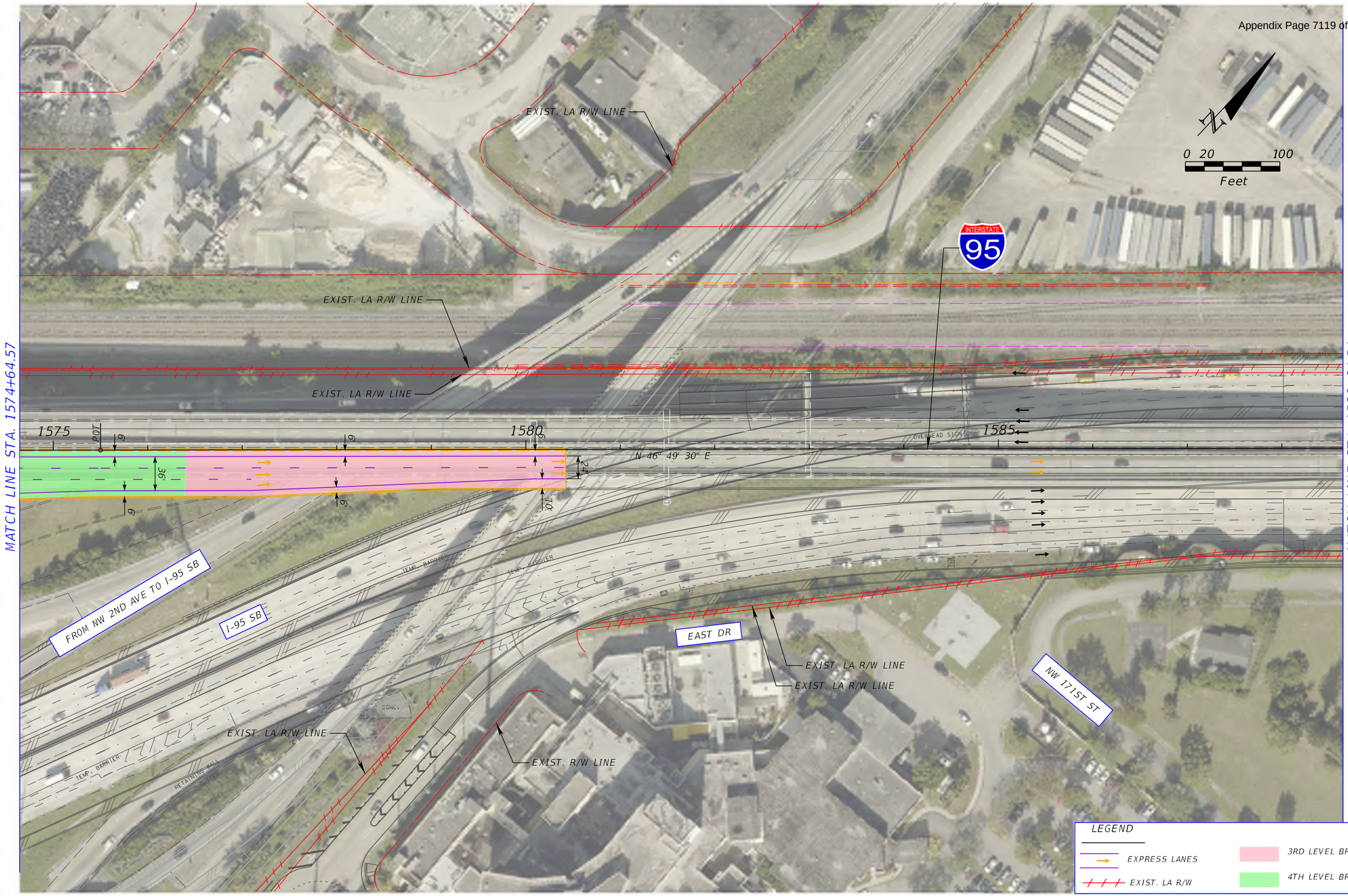
Kimley-Horn and Associates, Inc.
Certificate Of Authorization No. 696
Ramon F. Breton, P.E.
P.E. License No. 53139
189 South Orange Avenue, Suite 1000
Orlando, Florida 32801

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

SEGMENT 5
PLAN SHEET

SHEET NO.



REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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LEGEND

EXIST. LA R/W

0 20 100

Feet

EXIST. LA R/W LINE

EXIST. LA R/W LINE

EXIST. LA R/W LINE

I-95 SB

1590

1595

1600

N 46° 49' 30" E

MATCH LINE STA. 1588+64.54

MATCH LINE STA. 1602+64.56

I-95 NB

OVERHEAD SIGN

EAST DR

INTERSTATE 95

EXIST. LA R/W LINE

EXIST. LA R/W LINE

NW 171RST TER

NW MIAMI CT

NW 173RD ST

NE 174TH DR

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
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ROADWAY PLAN

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REVISIONS				STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 9A	MIAMI-DADE	414964-6-22-01		

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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LEGEND

LOCAL LANES

SURFACE STREETS

POTENTIAL R/W NEEDS

EXIST. LA R/W

0 20 100

Feet

EXIST. LA R/W LINE

EXIST. LA R/W LINE

CL_RAMP_5B2-6

CL_RAMP_5A-12

FROM MIAMI GARDENS DR TO I-95 SB

CL_RAMP_5A-17

FROM I-95 SB TO MIAMI GARDENS DR

EXIST. LA R/W LINE

CL_SR9-99

I-95 SB

1645

N 46° 50' 04" E

I-95 NB

1650

1655

BARRIER WALL

MATCH LINE STA. 1644+58.83

MATCH LINE STA. 1658+60.11

EXIST. LA R/W LINE

CL_SR9-98

FROM I-95 NB TO MIAMI GARDENS DR

CL_RAMP_5B2-3

CL_RAMP_5B1-10

CL_RAMP_5A-9

FROM I-95 SB TO MIAMI GARDENS DR

EXIST. LA R/W LINE

PC STA. 9419+69.50

CL_RAMP_5A-4

MIAMI GARDENS DR.

EXIST. LA R/W LINE

EXIST. LA R/W LINE

5140

MATCH LINE STA. 5140+12.15

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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LEGEND

LOCAL LANES

EXPRESS LANES

POTENTIAL R/W NEEDS

EXIST. LA R/W

0 20 100

Feet

SNAKE CREEK CANAL

EXIST. LA R/W LINE

CL_SR9-104

N 23° 35' 53" E

FROM I-95 SB TO NE 6TH AVE

I-95 SB

I-95 SB

I-95 NB

I-95 NB

1660

1665

1670

N 23° 35' 53" E

BARRIER WALL

POT

PC

PCC

CL_RAMP_5B1-13

CL_RAMP_5B1-14

INTERSTATE 95

MATCH LINE STA. 1658+60.11

MATCH LINE STA. 1672+58.23

FROM MIAMI GARDENS DR TO I-95 NB

EXIST. LA R/W LINE

NE 7TH CT

NE 184TH TER

SNAKE CREEK CANAL

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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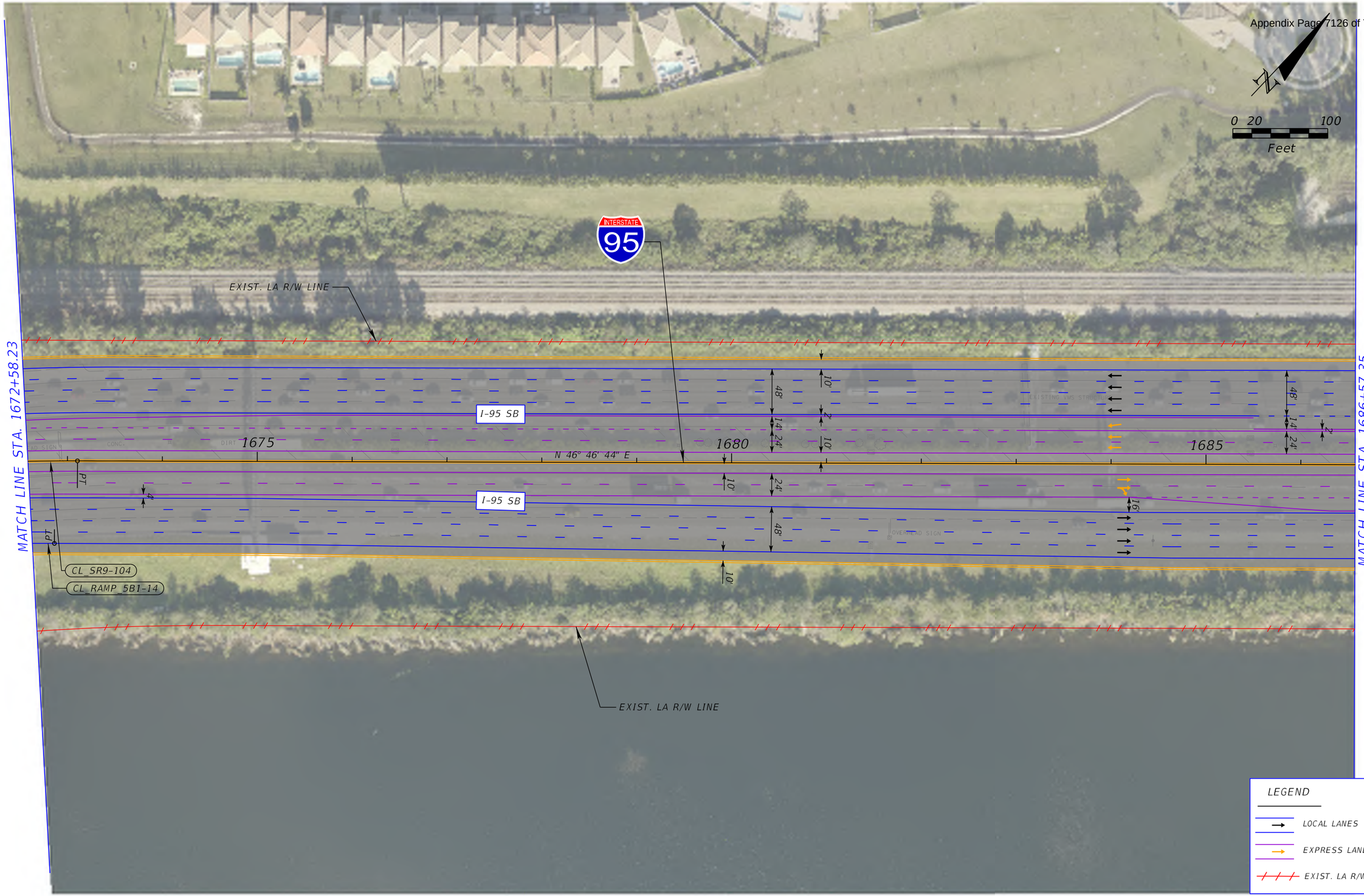

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

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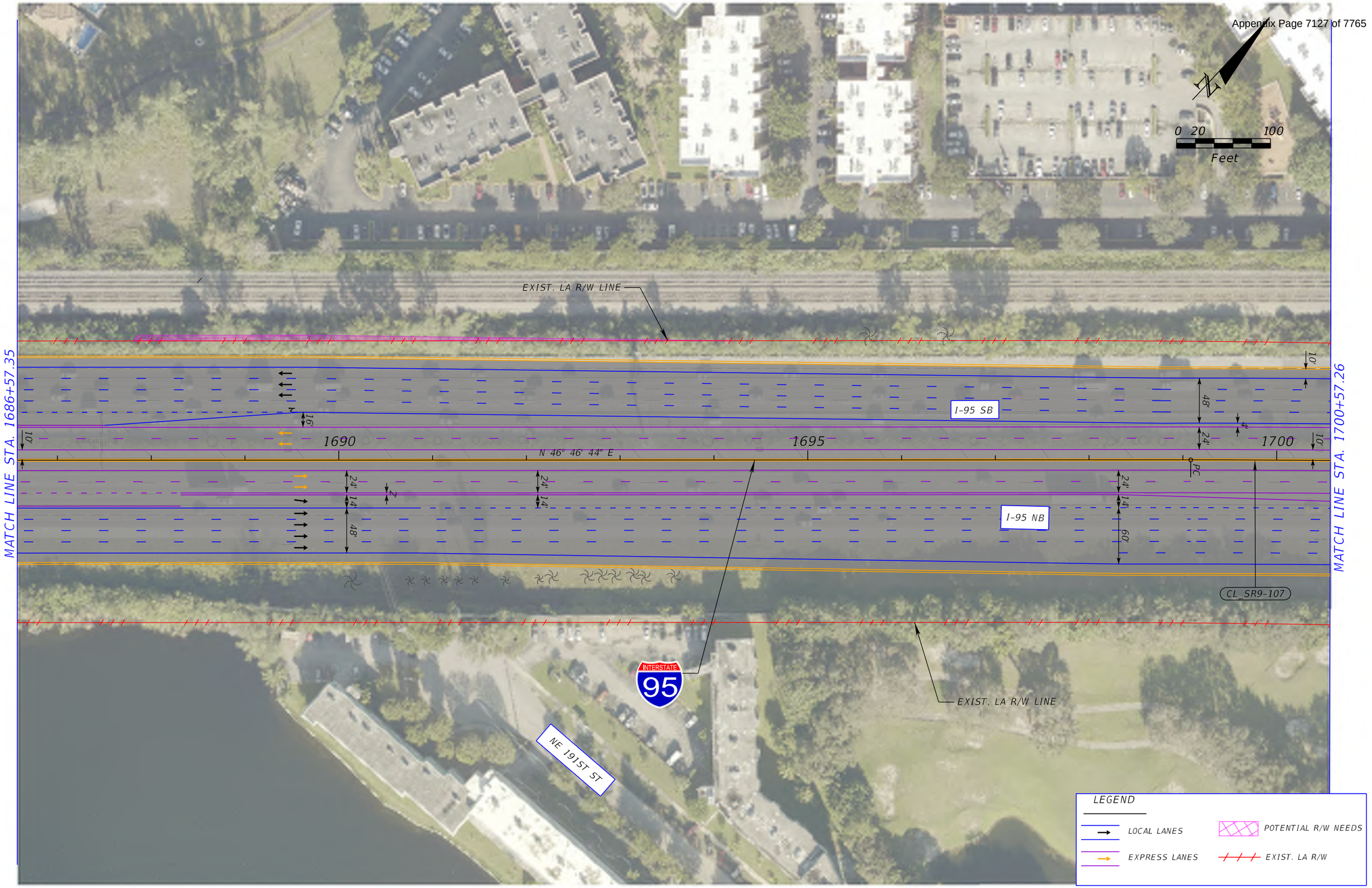

LEGEND

- LOCAL LANES
- EXPRESS LANES
- POTENTIAL R/W NEEDS
- EXIST. LA R/W

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

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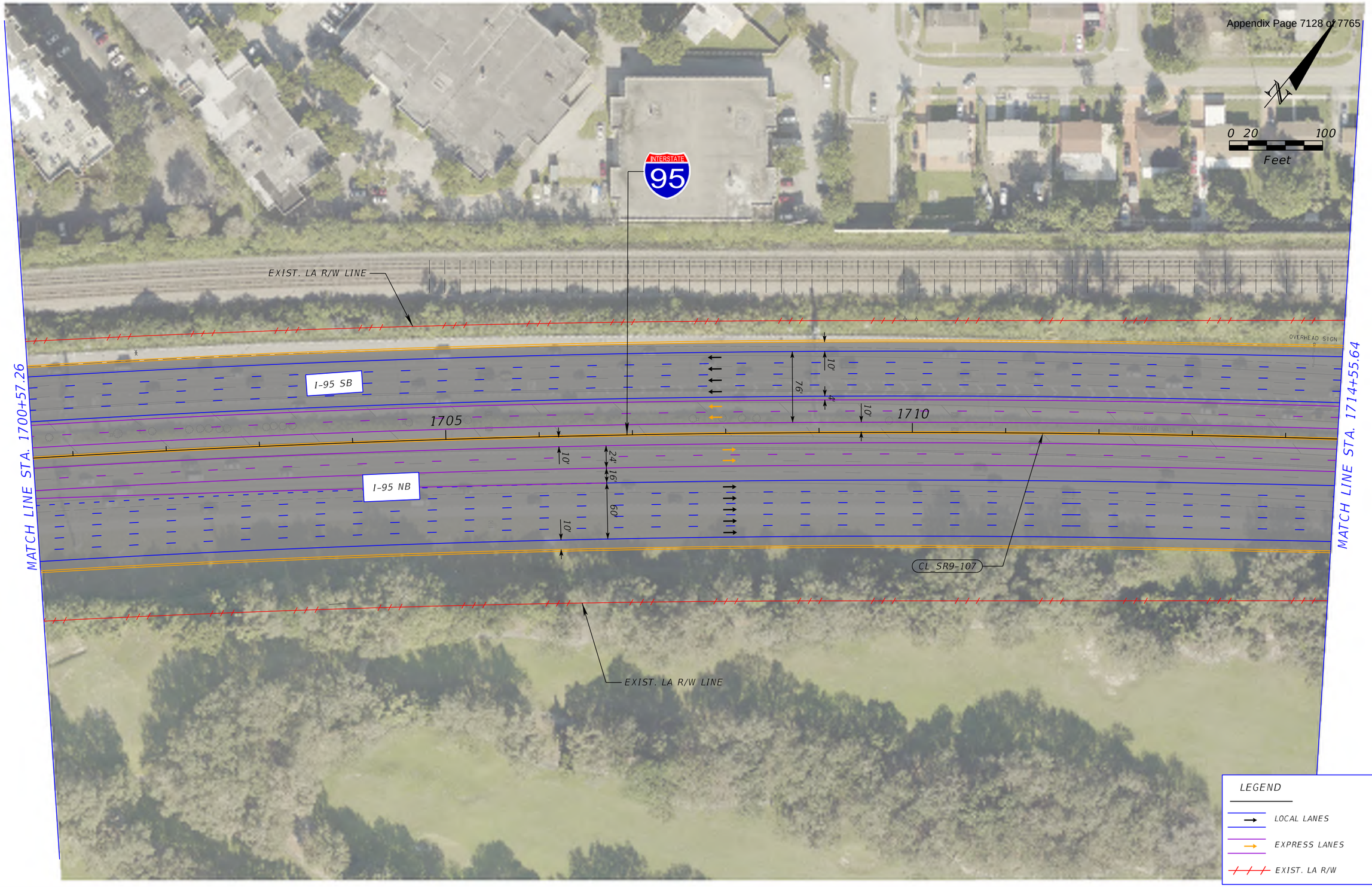

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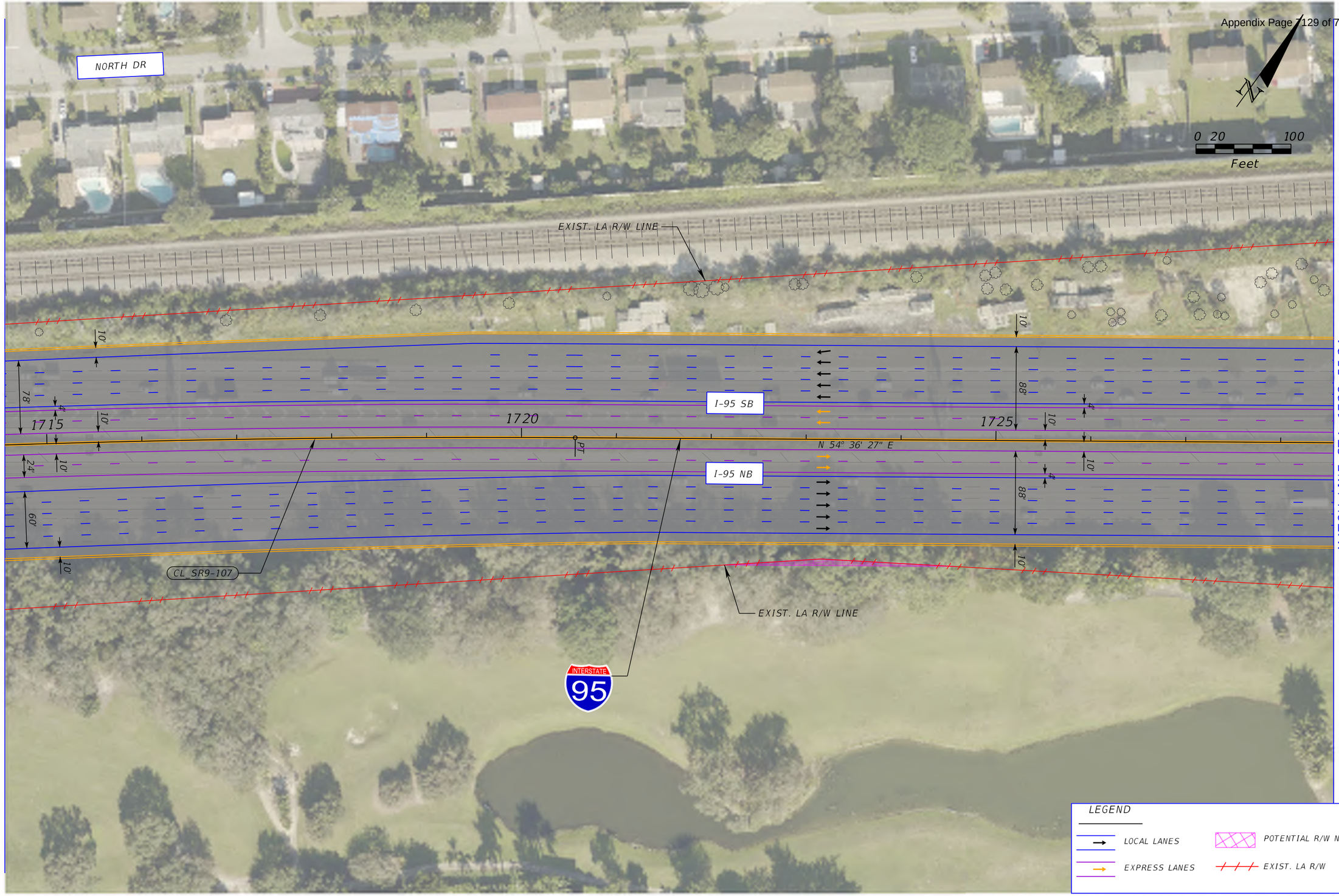

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SHEET NO.

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NE 15TH CT

EXIST. LA R/W LINE

0 20 100
Feet

CL RAMP 5D1-I

CL SR9-110

INTERSTATE 95

MATCH LINE STA. 1729+00.00

MATCH LINE STA. 1742+56.12

1730

1735

1740

N 54° 36' 27" E

I-95 SB

I-95 NB

POT

PC

PC

10'

88'

4'

10'

10'

4'

88'

10'

10'

15'

76'

4'

10'

76'

10'

8"

24"

10'

FROM I-95 NB TO IVES DAIRY RD

EXIST. LA R/W LINE

LEGEND

LOCAL LANES

EXPRESS LANES

EXIST. LA R/W

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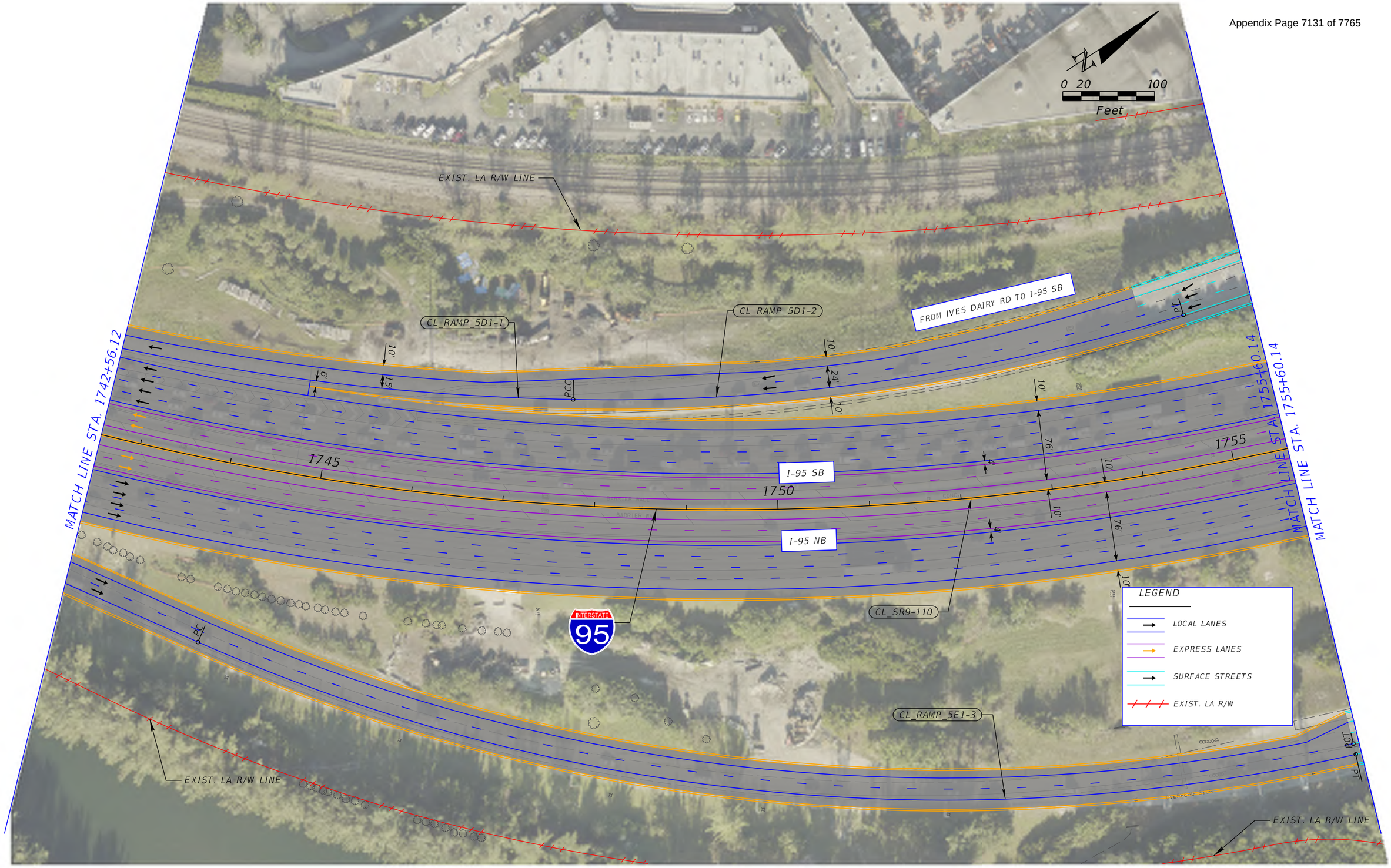
ROADWAY PLAN

SHEET NO.



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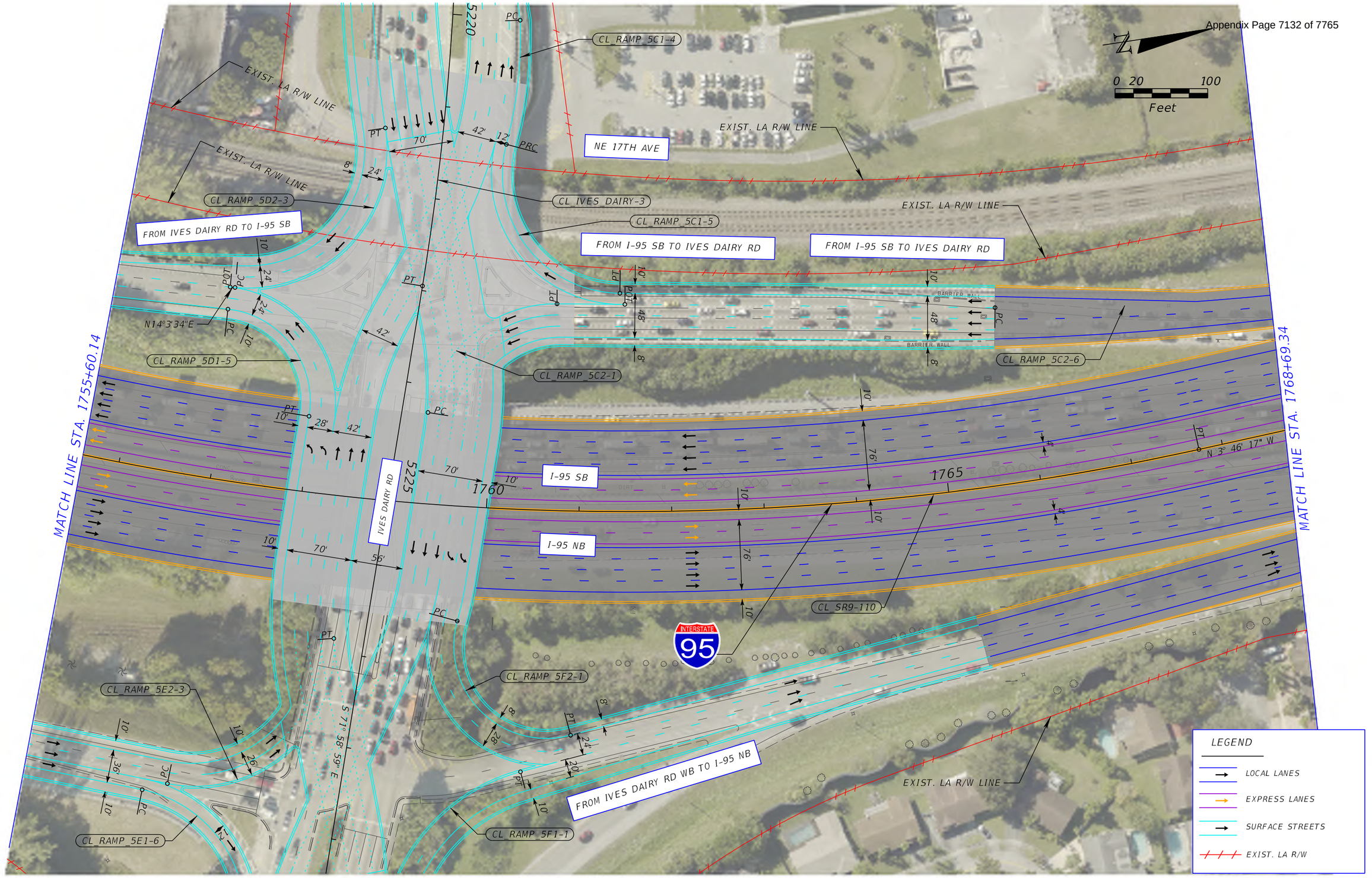

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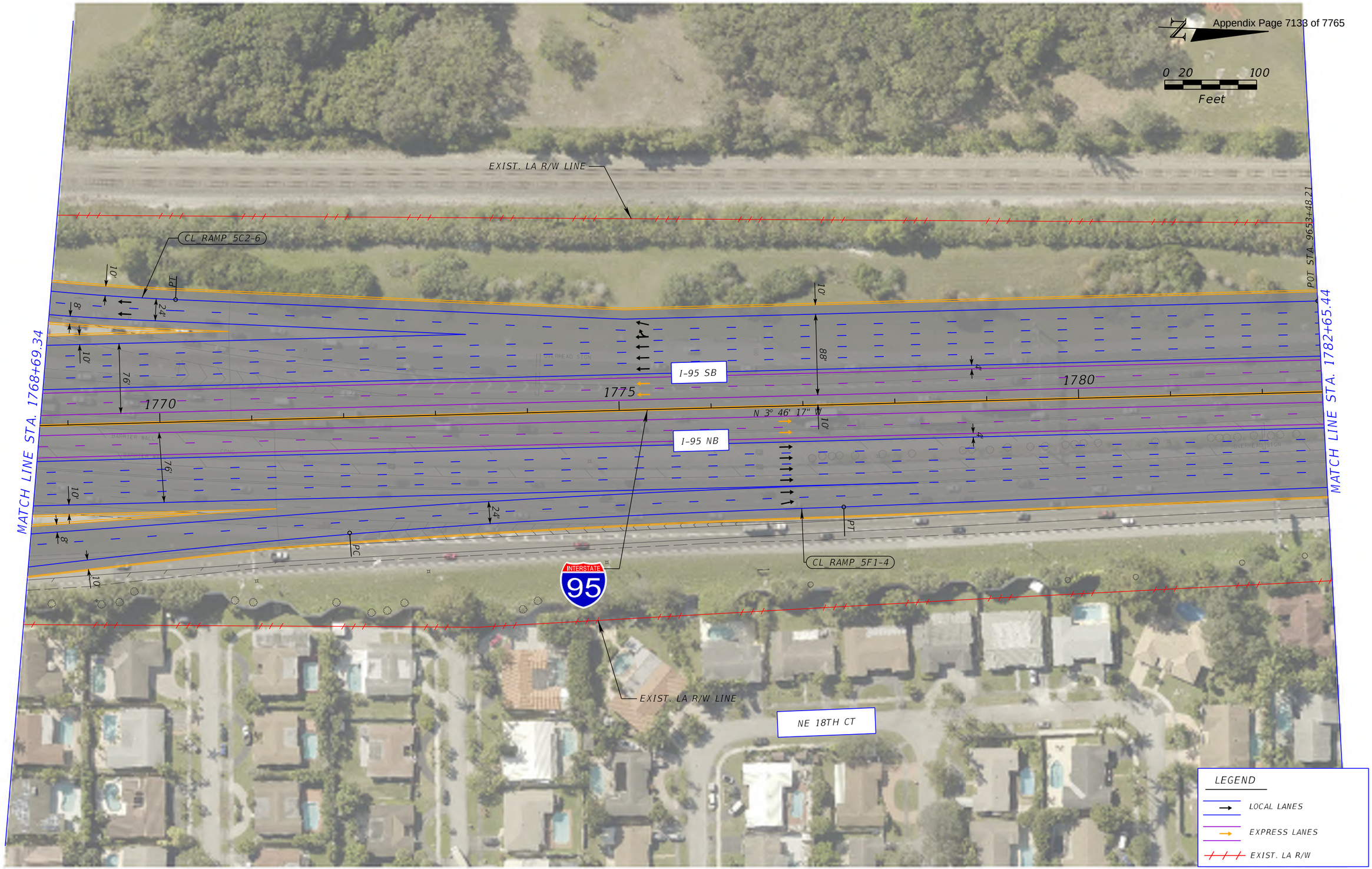

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ROADWAY PLAN

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LEGEND

LOCAL LANES

EXPRESS LANES

EXIST. LA R/W

N

0 20 100

Feet

MATCH LINE STA. 1782+65.44

MATCH LINE STA. 1796+66.07

EXIST. LA R/W LINE

EXIST. LA R/W LINE

EXIST. LA R/W LINE

10'

88'

10'

1785

1790

1795

N 3° 46' 17" W

I-95 SB

I-95 NB

60'

24'

4'

4'

POT

INTERSTATE 95

OVERHEAD SIGN

SIGN

NE 211TH LN

NE 212TH TER

NE 213TH LN

NE 18TH PL

NE 214TH TER

SW 11TH ST

REVISIONS			
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ROADWAY PLAN

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LEGEND

LOCAL LANES

EXPRESS LANES

EXIST. LA R/W

0 20 100

Feet

END SEGMENT 5
END CORRIDOR WIDE PLANNING STUDY LIMITS
℄ CONST. SR 9
STA. 1805+70.00

EXIST. LA R/W LINE

EXIST. LA R/W LINE

CL SR9-115

10'

72'

I-95 SB

1800

1805

10'

11'

N 3° 33' 04" W

PC

PT

10'

14'

I-95 NB

60'

60'

10'

MATCH LINE STA. 1796+66.07

MATCH LINE STA. 1811+00.00

INTERSTATE 95

EXIST. LA R/W LINE

SW 11TH ST

SW 8TH ST

SW 7TH ST

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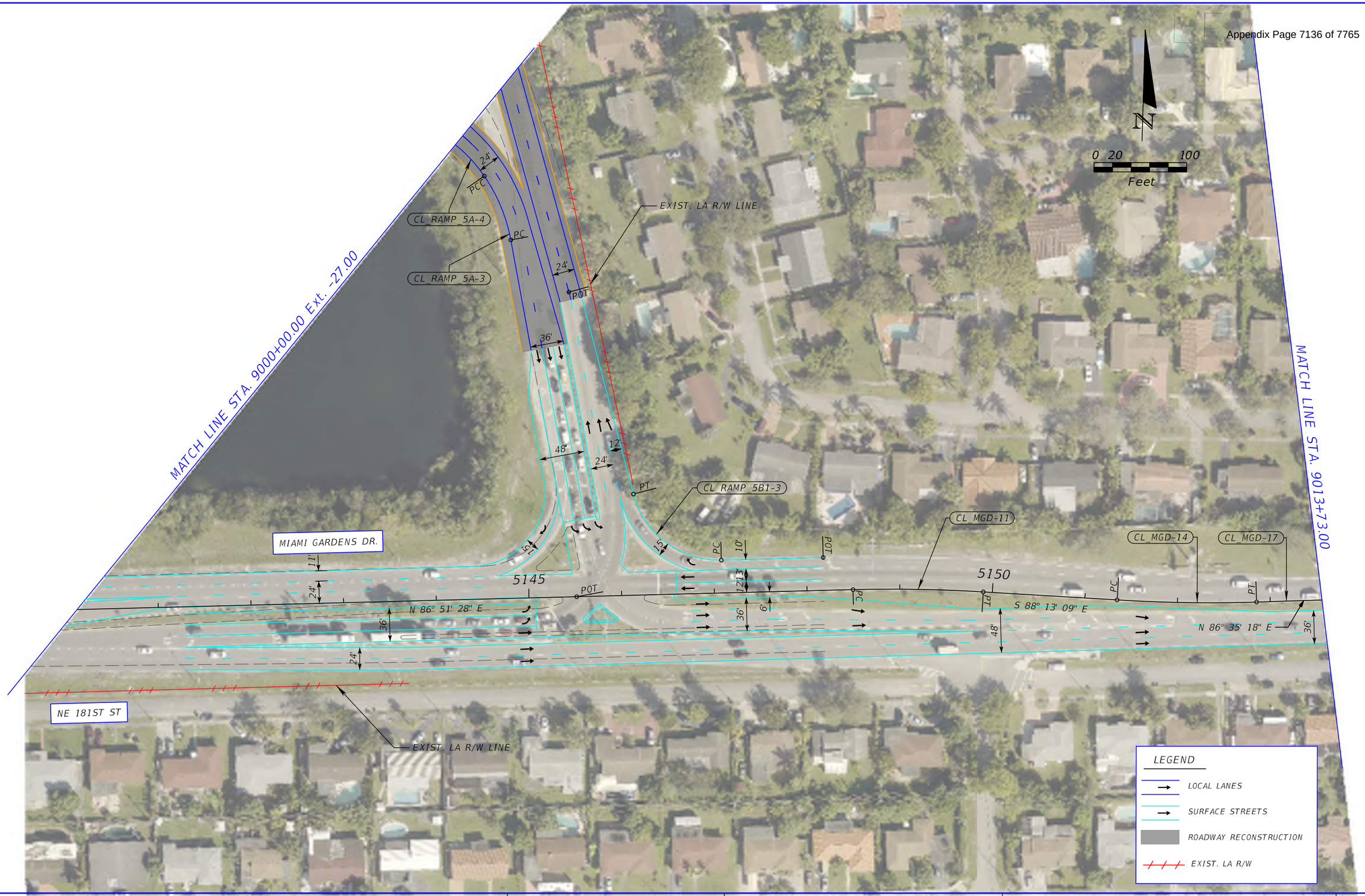

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DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 9A	MIAMI-DADE	414964-6-22-01		

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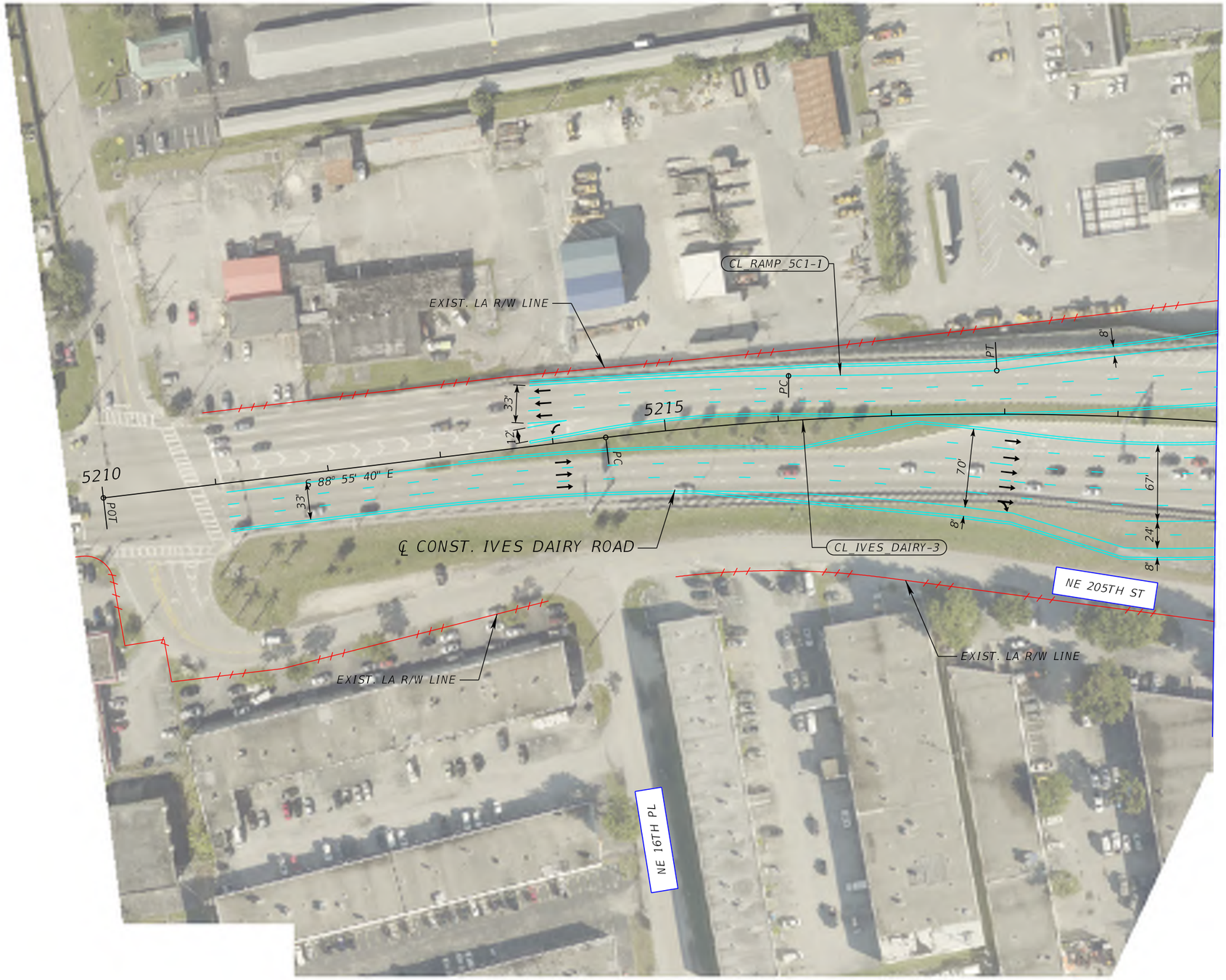

MATCH LINE STA. 10000+00.00 Ext. -26.00

N

0 20 100
Feet

LEGEND

SURFACE STREETS

EXIST. LA R/W

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REVISIONS			
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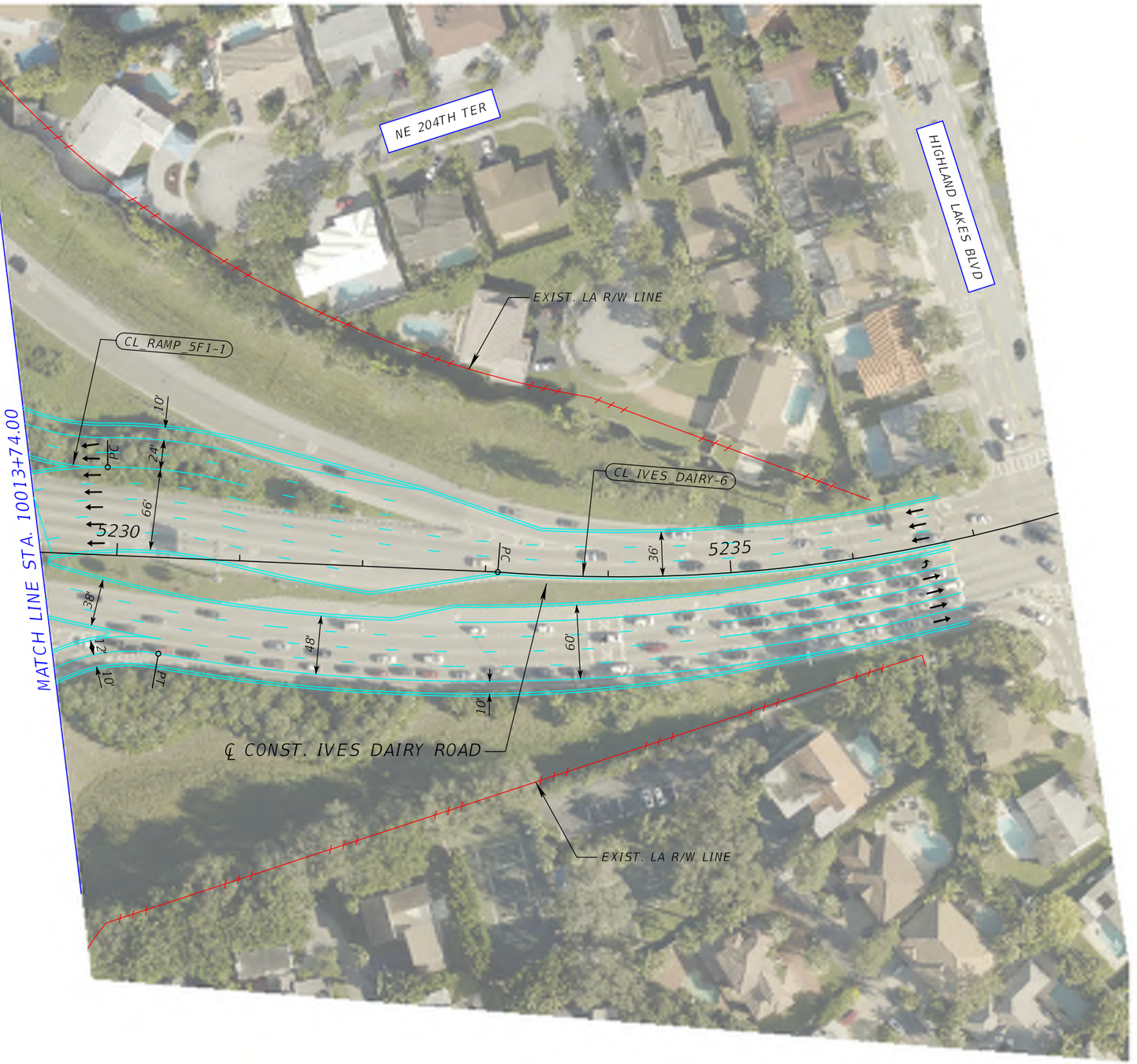
ROADWAY PLAN

SHEET NO.



N

0 20 100
Feet

LEGEND

SURFACE STREETS

EXIST. LA R/W

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SR 9A	MIAMI-DADE	414964-6-22-01

ROADWAY PLAN

SHEET NO.

Appendix U

REFINED BUILD CONCEPT COST AND RIGHT OF WAY ESTIMATES

Refined Build Concept Cost Estimates

	NEW CONSTRUCTION	STRUCTURES	RETAINING WALL	NOISE WALL (16')	LENGTH (FEET)	LENGTH (LANE/MILE)	NUMBER OF LANES	ITS	CONTINGENCY	MOT	CONSTRUCTION COST	TOTAL COST (Design, Construction, and CEI)	TOTAL COST PER SEGMENT
Segment 1	X					2.4					$ 3,817,879.00	$ 4,581,455.00	
		X									$ 177,083,446.85	$ 212,500,136.00	
			X								$ 2,283,856.00	$ 2,740,627.00	
				16	32800						$ 15,744,000.00	$ 18,892,800.00	$ 344,227,057.00
								3%			$ 5,967,875.46	$ 7,161,451.00	
									30%		$ 61,469,117.19	$ 73,762,941.00	
										10%	$ 20,489,705.73	$ 24,587,647.00	
Segment 2	X					35.9	1				$ 57,440,000.00	$ 68,928,000.00	
		X									$ 298,122,338.38	$ 357,746,806.00	
			18		3741						$ 2,154,536.50	$ 2,585,444.00	
			22		69930						$ 49,230,720.00	$ 59,076,864.00	
				16	20000						$ 9,600,000.00	$ 11,520,000.00	$ 720,793,958.00
								3%			$ 12,496,427.85	$ 14,995,713.00	
									30%		$ 128,713,206.82	$ 154,455,848.00	
										10%	$ 42,904,402.27	$ 51,485,283.00	
Segment 3	X					95.0	1				$ 152,000,000.00	$ 182,400,000.00	
		X									$ 316,824,661.03	$ 380,189,593.00	
			18		46633						$ 26,860,608.00	$ 32,232,730.00	
			22		71240						$ 50,152,960.00	$ 60,183,552.00	
				16	7400						$ 3,552,000.00	$ 4,262,400.00	$ 950,664,852.00
								3%			$ 16,481,706.87	$ 19,778,048.00	
									30%		$ 169,761,580.77	$ 203,713,897.00	
										10%	$ 56,587,193.59	$ 67,904,632.00	
Segment 4	X					12.6	1				$ 20,129,894.24	$ 24,155,873.00	
		X									$ 60,468,443.26	$ 72,562,132.00	
			18		1983						$ 1,142,208.00	$ 1,370,650.00	
			22		25908						$ 19,949,160.00	$ 23,938,992.00	
				16	1725						$ 828,000.00	$ 993,600.00	$ 177,396,637.00
								3%			$ 3,075,531.16	$ 3,690,637.00	
									30%		$ 31,677,971.00	$ 38,013,565.00	
										10%	$ 10,559,323.67	$ 12,671,188.00	
Segment 5	X					40.1	1				$ 64,158,658.12	$ 76,990,390.00	
		X									$ 54,200,169.04	$ 65,040,203.00	
			18		16486						$ 9,495,911.81	$ 11,395,094.00	
			22		29727						$ 22,889,414.16	$ 27,467,297.00	
				16	9000						$ 4,320,000.00	$ 5,184,000.00	$ 268,323,011.00
								3%			$ 4,651,924.59	$ 5,582,310.00	
									30%		$ 47,914,823.32	$ 57,497,788.00	
										10%	$ 15,971,607.77	$ 19,165,929.00	
Additional	Tolling										$ 12,000,000.00	$ 14,400,000.00	$ 14,400,000.00
	Signalization										$ 9,800,000.00	$ 11,760,000.00	$ 11,760,000.00
												Total	$ 2,487,565,515.00

Refined Build Concept Right-of-Way Estimates		
Segment	**RW Requirement**	**Parcels**
1	0.28	8
2	10.15	65
3	83.69	310
4	1.27	6
5	1.92	8
Total	**97.31**	**397**

Appendix V

REFINED BUILD CONCEPT OPERATIONAL ANALYSIS

FINAL

Interstate 95 Corridor Planning Study Miami-Dade County

US 1/SR 5 to Broward County Line

FM# 414964-6-22-01

Future (2045) Build Conditions
Traffic Operational Analysis

September 2019

Project No. 040006342

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INTRODUCTION

Interstate 95 (I-95) is the most highly traveled corridor in South Florida with over 250,000 vehicles traveling through parts of the corridor daily in Miami-Dade County. With long-term population growth projected in the region, travel demand in the corridor is expected to continue to increase over the next 20 years. The purpose of the I-95 Corridor Planning Study (CPS) is to perform a detailed planning-level analysis for the I-95 corridor within Miami-Dade County and develop improvement concepts. This report summarizes the future (2045) Build traffic operational analyses conducted as part of the I-95 CPS. Traffic operational analyses for the Existing and Future (2045) No-Build scenarios are summarized in individual reports under separate cover.

The southern project limit is SR-5/US-1/Dixie Highway at SW 16 Avenue in the City of Miami, approximately one-half mile south of the beginning of I-95. The northern project limit is the Broward/Miami-Dade County line. East-west study area limits generally included one adjacent signalized intersection east and west of I-95 interchanges along the corridor, per the scope of services. A project map is shown in Figure 1.

For the purposes of this project, two initial Build concepts - Build Concept 1 and Build Concept 2 - were developed and evaluated. Additional review and evaluation was conducted by FDOT District 6 after the completion of the evaluation of Build Concept 1 and Concept 2. The evaluation included both a reexamination of the purpose and goals of future projects along the corridor, and an independent review of this Corridor Planning Study (CPS) in a Cost Risk Assessment and Value Engineering (CRAVE) analysis. Upon completion of the CRAVE analysis and in response to the concerns outlined by FDOT District 6, the CPS developed a third Build concept, hereafter referred to as the Refined Build Concept.

The Refined Build Concept utilized in this analysis minimized potential right-of-way acquisition at the direction of FDOT D6, resulting in no additional general purpose lanes capacity improvements (but one (1) additional express lane in each direction). Therefore, although additional mainline capacity was allocated to the I-95 corridor via the Express Lanes, the results indicate multiple mainline failures along Interstate 95 during both the AM peak hour and the PM peak hour. Most failures identified in the No-Build analysis for the mainline lanes remain.

Additionally, some improvements were proposed at study intersections to address failures associated with I-95 traffic. Improvements were proposed for deficient approaches where traffic from those approaches would impact traffic accessing/exiting I-95. However, failures at movements not associated with I-95 traffic (i.e. parallel north-south movement at adjacent intersections) were not addressed as the focus of this project is to address the I-95 corridor. Also, including geometric improvements not associated with I-95 traffic is not consistent with the FDOT D6 directive to minimize right-of-way acquisition.

Future Build traffic volumes were developed utilizing year 2045 forecasts developed from the Southeast Regional Planning Model, Version 7 (SERPM 7). Operations along the mainline facility were evaluated with McTrans *Highway Capacity Software* (HCS 2010 v6.50) Facilities Module. Furthermore, capacity analyses for intersections along the I-95 corridor were performed with Trafficware's *Synchro* (Version 10.0) software, which is based on the 2000/2010/6th Editions of the *Highway Capacity Manual*.

The operational analysis of the corridor study is presented in the following sections: future volume development, Level of Service (LOS) targets/analysis criterion, and operational analysis.

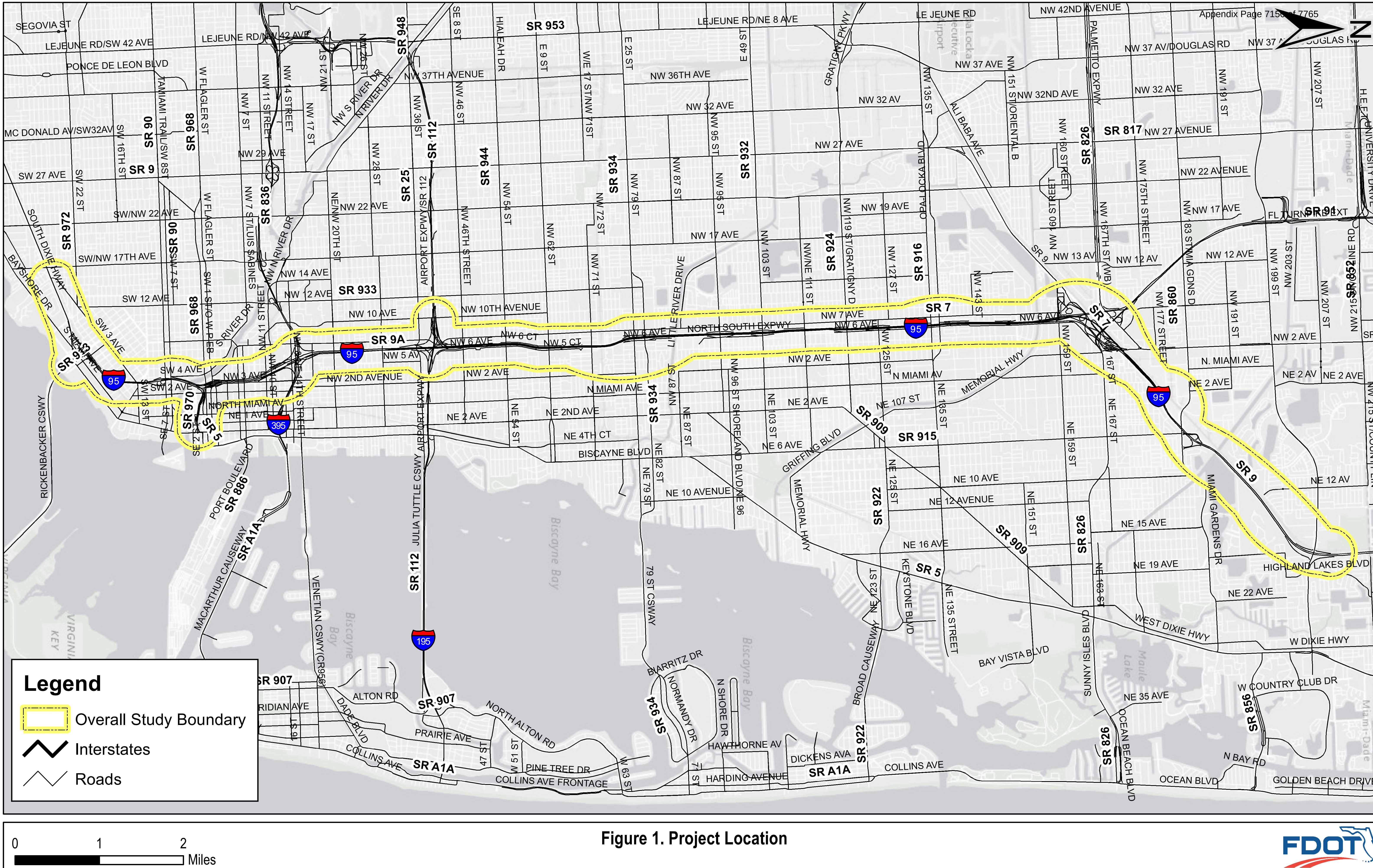

Figure 1. Project Location

VOLUME DEVELOPMENT

The future (2045) Build traffic operational analyses includes corridor improvements to I-95 as detailed in the *FDOT District 6, Interstate-95 Corridor Planning Study - Conceptual Improvement & Design Evaluation Report*, prepared by Kimley-Horn and Associates. Generally, no additional general purpose lanes were added although some auxiliary lanes and on-ramp/off-ramp improvements were proposed. Auxiliary lanes were added between adjacent ramps to provide additional distance for merging/diverging and on-ramp/off-ramp improvements including moving gore points to meet AASHTO standards and to provide sufficient space between merge/diverge points along the mainline. However, additional capacity was added to the I-95 corridor via one (1) additional express lane in each direction between SR 112/ I-195 and the Golden Glades Interchange.

Traffic Data

Traffic data were gathered or collected from various sources for the existing analysis and used as a baseline for the no-build and build analyses. AM and PM corridor-wide peak periods were determined in a previous analysis using FDOT count stations traffic data. A further description of the traffic data can be found in the *FDOT District 6, Interstate-95 Corridor Planning Study - Existing Conditions Operational Analysis Report*.

SERPM Forecasts

The SERPM 7.0 model used for the year 2045 No-Build analysis was updated with the proposed Build improvements to the I-95 corridor. The Build SERPM 7.0 model was used to estimate traffic volumes for the future year. The changes to the model inputs associated with the future year (2045) scenarios were incorporated into the regional model dataset and the regional model was used to forecast future year traffic demands in a manner consistent with the base year for each scenario. Utilizing the SERPM output, AM and PM peak hour volumes along the I-95 corridor and at the study intersections were developed. The intersection volumes were further refined utilizing the exiting turning movement counts as a baseline for directional splits.

LOS TARGETS/ANALYSIS CRITERION

FDOT Topic No. 525-000-006-c provides LOS targets for the State Highway System (SHS). At the outset of the study FDOT utilized LOS standards (FDOT Topic No. 525-000-006); however, in 2017 FDOT transitioned from standards to targets. The following LOS criteria were considered for the analysis since the study area meets the condition of urbanized areas with population over 500,000.

- SIS Facilities – LOS D
- Other State Roads – LOS D

Operational analysis criteria also included the comparison of queue and available storage for turning movements. Passenger car vehicle lengths, accounting for space between vehicles, were assumed to be 25 feet. The 95th percentile queue lengths (in feet) were gathered from the Synchro/HCM 2010 results for intersection approaches. HCM 2000 results were used for lane configurations not supported by the HCM 2010 methodology.

OPERATIONAL ANALYSIS

HCS Mainline Operational Analysis

Traffic capacity analyses were performed to evaluate the Future Build (2045) freeway operational conditions along I-95 with the proposed improvements. HCS was used to examine ramp areas and merge/diverge areas along the study corridor.

The Future Build (2045) general purpose (basic), weaving, and ramp merge/diverge analysis results for I-95 operational conditions are summarized in **Tables 1** through **4**. Density was used as the measure of effectiveness to estimate the LOS of facility segments. It should be noted that for certain segments upstream bottlenecks restrict volumes downstream which lowers the v/c ratio and raises the LOS. However, based on demand, the LOS for those segments may be worse if the bottlenecks were improved. Demand-based LOS can be found in the HCS results provided in Appendix A. The HCS results are presented by northbound and southbound directions and have been included in **Appendix A**. The corridor was divided into two segments for the analysis: Segment 1 – US 1 to NW 95 Street and Segment 2 – NW 95 Street to Broward County/Miami-Dade County Line.

Table 1 summarizes the northbound AM and PM HCS results for Segment 1 (US 1 to NW 95 Street). The results indicate that 30 of the 34 segments are anticipated to operate at LOS E or worse during at least one (1) of the peak periods. Note, the subject segments are shown in blue.

Table 1: I-95 NB Segment 1 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
US 1/I-95 Mainline to Westbound Rickenbacker Causeway On-Ramp	Basic	3,464 / (3,079)	0.74 / (0.65)	26.9 / (22.8)	D / (C)
Westbound Rickenbacker Causeway On-Ramp	Merge	6,073 / (5,991)	0.84 / (1.00)	33.6 / (44.7)	F / (F)
Westbound Rickenbacker Causeway On-Ramp to SW 8 Street Off-Ramp	Basic	6,073 / (5,991)	0.56 / (0.67)	57.5 / (24.6)	F / (C)
SW 8 Street Off-Ramp	Diverge	6,073 / (5,991)	0.53 / (0.67)	61.7 / (25.2)	F / (C)
SW 8 Street Off-Ramp to SW 8 Street On-Ramp (East side connection)	Basic	5,766 / (5,402)	0.48 / (0.60)	70.2 / (20.9)	F / (C)
SW 8 Street On-Ramp (East side connection)	Merge	6,640 / (6,174)	0.58 / (0.71)	71.7 / (28.0)	F / (C)
SW 8 Street On-Ramp (West side connection)	Merge	7,597 / (6,928)	0.70 / (0.82)	66.7 / (32.8)	F / (D)
SW 7 Street On-Ramp to SR 970/Downtown Distributor Off-Ramp	Weaving	8,415 / (7,477)	1.00 / (0.97)	10.9 / (34.9)	F / (F)
NW 2 Street Off-Ramp	Diverge	7,810 / (7,044)	0.75 / (0.85)	32.0 / (37.2)	F / (F)
NW 2 Street Off-Ramp to SR 970/Downtown Distributor/N Miami Avenue On-Ramp	Basic	6,241 / (5,604)	0.61 / (0.67)	21.7 / (38.0)	C / (E)
SR 970/Downtown Distributor/N Miami Avenue On-Ramp to I-395 Off-Ramp	Weaving	8,178 / (8,445)	0.92 / (0.98)	58.2 / (84.8)	F / (F)
I-395 Off-Ramp to SR 836 Off-Ramp	Basic	7,297 / (7,534)	0.72 / (0.70)	57.2 / (46.2)	F / (F)
SR 836 Off-Ramp	Diverge	7,297 / (7,534)	0.71 / (0.68)	63.3 / (60.6)	F / (F)
SR 836 Off-Ramp to NW 3 Avenue/NW 8 Street On-Ramp	Basic	5,851 / (6,929)	0.57 / (0.63)	77.0 / (71.5)	F / (F)
NW 3 Avenue/NW 8 Street On-Ramp to I-395 Flyover Bypass Off-Ramp	Weaving	8,144 / (9,112)	1.00 / (1.00)	70.9 / (80.1)	F / (F)
I-395 Flyover Bypass Off-Ramp to I-395/SR 836 On-Ramp	Basic	6,132 / (6,964)	0.51 / (0.57)	18.4 / (20.3)	C / (C)
I-395/SR 836 On-Ramp	Merge	9,892 / (11,189)	0.82 / (0.87)	39.4 / (50.1)	F / (F)
SR 836/I-395 On-Ramp to I-195/SR 112 Off-Ramp	Basic	9,892 / (11,189)	0.82 / (0.87)	31.3 / (34.3)	F / (F)
I-195/SR 112 Off-Ramp	Diverge	9,892 / (11,189)	0.82 / (0.87)	33.1 / (35.7)	F / (F)
I-95 Express Lanes Entrance	Diverge	8,509 / (9,648)	0.71 / (0.75)	29.6 / (32.8)	F / (F)
I-95 Express Lanes Entrance to NW 29th Street On-Ramp	Basic	5,838 / (6,239)	0.49 / (0.49)	17.1 / (17.0)	B / (B)
NW 29th Street On-Ramp	Merge	6,993 / (7,741)	0.67 / (0.71)	27.3 / (33.3)	F / (F)
NW 29th Street On-Ramp to I-195 On-Ramp	Basic	6,993 / (7,741)	0.67 / (0.71)	23.7 / (25.5)	F / (F)
I-195 On-Ramp	Merge	8,961 / (10,260)	0.96 / (1.00)	41.7 / (49.2)	F / (F)
I-195 On-Ramp to NW 62nd Street Off-Ramp	Basic	8,961 / (10,260)	0.96 / (1.00)	41.7 / (45.4)	F / (F)
NW 62 Street Off-Ramp	Diverge	8,961 / (10,260)	0.72 / (0.75)	26.5 / (27.8)	F / (F)
NW 62 Street Off-Ramp to NW 62 Street On-Ramp	Basic	7,925 / (8,970)	0.63 / (0.64)	16.9 / (20.7)	B / (C)
NW 62 Street On-Ramp	Merge	9,096 / (10,138)	0.74 / (0.74)	37.7 / (48.1)	F / (F)
NW 62 Street On-Ramp to NW 79 Street Off-Ramp	Ramp Overlap	9,096 / (10,138)	0.72 / (0.73)	57.0 / (62.0)	F / (F)
NW 79 Street Off-Ramp	Diverge	9,096 / (10,138)	0.96 / (0.97)	40.6 / (40.7)	F / (F)
NW 79 Street Off-Ramp to NW 81 Street On-Ramp	Basic	8,205 / (9,073)	0.84 / (0.84)	49.8 / (49.8)	F / (F)
NW 81 Street On-Ramp	Merge	9,861 / (10,548)	1.00 / (1.00)	45.3 / (45.1)	F / (F)
NW 81 Street On-Ramp to NW 95 Street Off-Ramp	Ramp Overlap	9,861 / (10,548)	1.00 / (1.00)	45.3 / (45.1)	F / (F)
NW 95 Street Off-Ramp	Diverge	9,861 / (10,548)	1.00 / (1.00)	39.0 / (39.2)	F / (F)

Legend: AM Peak Hour (PM Peak Hour)

Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 2 summarizes the northbound AM and PM HCS results for Segment 2 (NW 95 Street to the Broward County Line). The results indicate that 17 of the 24 segments are anticipated to operate at LOS E or worse during at least one (1) of the peak periods, as highlighted in blue.

Table 2: I-95 NB Segment 2 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
NW 95 Street Off-Ramp to NW 119 Street Off-Ramp	Basic	8,899 / (9,373)	0.98 / (0.99)	43.2 / (45.4)	E / (F)
NW 119 Street Off-Ramp	Diverge	8,899 / (9,373)	0.98 / (0.99)	37.2 / (37.7)	E / (F)
NW 119 Street Off-Ramp to NW 103 Street On-Ramp	Basic	7,478 / (8,092)	0.84 / (0.82)	32.1 / (38.7)	D / (E)
NW 103 Street On-Ramp	Merge	8,226 / (8,837)	0.91 / (0.90)	36.0 / (50.1)	E / (F)
NW 119 Street On-Ramp to NW 135 Street Off-Ramp	Weaving	8,669 / (9,304)	0.99 / (0.96)	43.2 / (47.6)	F / (F)
NW 135 Street Off-Ramp to Opa Locka Blvd On-Ramp	Basic	7,264 / (8,060)	0.81 / (0.68)	30.6 / (95.3)	D / (F)
Opa Locka Blvd On-Ramp to NW 151 Street Off-Ramp	Weaving	9,133 / (9,813)	1.00 / (0.81)	53.6 / (58.7)	F / (F)
NW 151 Street Off-Ramp to Northbound Turnpike Off-Ramp	Basic	8,902 / (9,523)	0.94 / (0.75)	39.6 / (57.2)	E / (F)
Northbound Turnpike Off-Ramp	Diverge	8,902 / (9,523)	0.94 / (0.73)	36.1 / (62.6)	E / (F)
NW 167 Street Off-Ramp	Diverge	6,787 / (7,600)	0.96 / (0.76)	38.6 / (57.8)	F / (F)
NW 167 Street Off-Ramp to SR 826 On-Ramp	Basic	4,904 / (5,814)	0.71 / (0.53)	24.2 / (82.4)	C / (F)
SR 826 On-Ramp	Merge	6,998 / (8,274)	0.92 / (0.68)	48.2 / (26.6)	F / (F)
NW 2 Avenue/NW 167 Street On-Ramp	Merge	7,513 / (8,773)	0.99 / (0.75)	41.6 / (29.1)	F / (F)
NW 2 Avenue/NW 167 Street On-Ramp to SR 860/Miami Gardens Drive Off-Ramp	Basic	7,513 / (8,773)	0.98 / (0.75)	44.0 / (27.3)	F / (F)
SR 860/Miami Gardens Drive Off-Ramp	Diverge	7,513 / (8,773)	0.98 / (0.75)	43.1 / (29.1)	F / (F)
SR 860/Miami Gardens Drive Off-Ramp to SR 860/Miami Gardens Drive On-Ramp	Basic	6,781 / (7,821)	0.87 / (0.67)	51.0 / (33.1)	F / (F)
SR 860/Miami Gardens Drive On-Ramp	Merge	7,642 / (8,925)	1.00 / (0.83)	43.5 / (33.4)	F / (F)
SR 860/Miami Gardens Drive On-Ramp to Managed Lanes Egress	Basic	7,642 / (8,925)	0.75 / (0.62)	27.4 / (21.6)	D / (C)
Managed Lanes Egress	Merge	7,666 / (8,967)	0.75 / (0.63)	29.3 / (23.5)	D / (C)
Managed Lanes Egress to Ives Dairy Road Off-Ramp	Basic	7,666 / (8,967)	0.75 / (0.63)	27.4 / (21.8)	D / (C)
Ives Dairy Road Off-Ramp	Diverge	7,666 / (8,967)	0.75 / (0.63)	28.1 / (23.9)	D / (C)
Ives Dairy Road Off-Ramp to Ives Dairy Road On-Ramp	Basic	6,062 / (6,963)	0.60 / (0.49)	20.9 / (16.9)	C / (B)
Ives Dairy Road On-Ramp	Merge	8,597 / (9,177)	0.82 / (0.71)	34.1 / (27.8)	D / (C)
Ives Dairy Road On-Ramp to Broward County Line	Basic	8,597 / (9,177)	0.66 / (0.57)	23.5 / (20.1)	C / (C)

Legend: AM Peak Hour (PM Peak Hour)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 3 summarizes the southbound AM and PM HCS results for Segment 1 (NW 95 Street to US 1). The results indicate that 14 of the 25 segments are anticipated to operate at LOS E or worse during one (1) or both of the peak periods, as highlighted in blue.

Table 3: I-95 SB Segment 1 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
NW 95 Street Off-Ramp to NW 95 Street On-Ramp	Basic	6,936 / (6,629)	0.56 / (0.65)	71.3 / (56.4)	F / (F)
NW 95 Street On-Ramp to NW 81 Street Off-Ramp	Weaving	9,684 / (8,444)	1.00 / (1.00)	42.0 / (40.3)	F / (F)
NW 81 Street Off-Ramp to NW 79 St On-Ramp	Basic	8,373 / (7,194)	0.55 / (0.64)	19.1 / (22.2)	C / (C)
NW 79 Street On-Ramp to NW 69 St Off-Ramp	Weaving	9,636 / (8,261)	0.72 / (0.79)	28.1 / (33.0)	F / (D)
NW 62 Street Off-Ramp to NW 62 Street/NW 6 Avenue On-Ramp	Basic	8,465 / (7,093)	0.60 / (0.64)	20.9 / (22.5)	C / (C)
NW 62 Street/NW 6 Avenue On-Ramp	Merge	8,672 / (7,268)	0.62 / (0.66)	23.5 / (24.9)	C / (C)
NW 62 Street/NW 6 Avenue On-Ramps to NW 62 Street On-Ramp	Basic	8,672 / (7,268)	0.50 / (0.51)	17.4 / (57.7)	B / (F)
NW 62 Street On-Ramp to SR 112/I-195 Off-Ramp	Weaving	10,309 / (8,546)	1.00 / (1.00)	47.7 / (39.4)	F / (F)
SR 112/I-195 Off-Ramp to SR 112/I-195 On-Ramp	Basic	6,557 / (5,407)	0.61 / (0.61)	21.2 / (21.2)	C / (C)
SR 112/I-195 On-Ramp	Merge	8,191 / (7,229)	0.84 / (0.87)	34.7 / (36.3)	F / (F)
Managed Lanes Egress	Merge	12,074 / (10,104)	0.57 / (0.57)	21.4 / (29.3)	C / (D)
NW 32 Street On-Ramp	Merge	13,901 / (12,686)	0.67 / (0.64)	52.2 / (65.0)	F / (F)
NW 32 Street On-Ramp to SR 836 Off-Ramp	Basic	13,901 / (12,686)	0.67 / (0.63)	67.8 / (71.8)	F / (F)
SR 836 Off-Ramp	Diverge	13,901 / (12,686)	1.00 / (0.95)	42.0 / (48.0)	F / (F)
I-395 Off-Ramp	Diverge	9,855 / (9,368)	0.95 / (0.92)	37.5 / (44.1)	F / (F)
NW 8 Street Off-Ramp	Diverge	8,204 / (8,028)	0.79 / (0.77)	33.5 / (53.1)	F / (F)
NW 8 Street Off-Ramp to I-395/SR 836 On-Ramp	Basic	6,173 / (6,144)	0.60 / (0.57)	21.2 / (71.9)	C / (F)
I-395/SR 836 On-Ramp to SW 8 Street Off-Ramp	Weaving	7,976 / (8,674)	0.99 / (1.00)	44.9 / (41.6)	F / (F)
SR 970/Downtown Distributor Off-Ramp	Diverge	5,933 / (6,501)	0.54 / (0.49)	22.7 / (21.8)	C / (C)
SR 970/Downtown Distributor Off-Ramp to SW 3 Court On-Ramp	Basic	3,474 / (3,656)	0.31 / (0.28)	11.1 / (9.8)	B / (A)
SW 3 Court On-Ramp	Merge	3,945 / (4,398)	0.38 / (0.38)	14.1 / (13.9)	B / (B)
Miami Avenue/Downtown Distributor On-Ramp	Merge	4,325 / (5,316)	0.43 / (0.50)	16.0 / (18.8)	B / (B)
Miami Avenue/Downtown Distributor On-Ramp to SW 8 Street On-Ramp	Basic	4,325 / (5,316)	0.43 / (0.50)	14.9 / (17.4)	B / (B)
SW 8 Street On-Ramp to SW 26 Road Off-Ramp	Weaving	4,583 / (5,577)	0.84 / (0.94)	17.4 / (16.3)	F / (F)
SW 26 Road Off-Ramp to US 1	Basic	2,081 / (2,602)	0.32 / (0.38)	10.8 / (13.1)	A / (B)

Legend: AM Peak Hour (PM Peak Hour)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Table 4 summarizes the southbound AM and PM HCS results for Segment 2 (Broward County Line to NW 95 Street). The results indicate that 14 of the 32 segments are anticipated to operate at LOS E or worse during one (1) or both of the peak periods, as highlighted in blue.

Table 4: I-95 SB Segment 2 Freeway Analysis Results

I-95 Segment	Analysis Type	Adj. Demand (veh)	v/c	Density (pc/mi/ln)	LOS
Broward County Line to Ives Dairy Road Off-Ramp	Basic	7,431 / (6,896)	0.79 / (0.73)	29.4 / (26.6)	D / (D)
Ives Dairy Road Off-Ramp	Diverge	7,431 / (6,896)	0.79 / (0.73)	29.7 / (28.1)	D / (D)
Ives Dairy Road Off-Ramp to Ives Dairy Road On-Ramp	Basic	5,651 / (4,733)	0.60 / (0.51)	21.8 / (17.5)	C / (B)
Ives Dairy Rd On-Ramp	Merge	7,821 / (6,566)	0.78 / (0.70)	48.4 / (26.7)	F / (C)
Ives Dairy Rd On-Ramp to Managed Lanes Ingress	Basic	7,821 / (6,566)	0.75 / (0.70)	58.3 / (24.9)	F / (C)
Managed Lanes Ingress	Diverge	7,821 / (6,566)	1.00 / (0.93)	38.4 / (35.7)	F / (E)
Managed Lanes Ingress to Miami Gardens Drive	Basic	7,384 / (6,242)	0.71 / (0.67)	25.3 / (23.5)	C / (C)
Miami Gardens Drive Off-Ramp	Diverge	7,384 / (6,242)	0.94 / (0.67)	36.4 / (25.0)	F / (C)
Miami Gardens Drive Off-Ramp to Miami Gardens Drive On-Ramp	Basic	6,549 / (5,119)	0.84 / (0.73)	32.4 / (26.3)	D / (D)
Miami Gardens Drive On-Ramp	Merge	7,667 / (5,978)	0.99 / (0.86)	48.2 / (35.0)	F / (D)
Miami Gardens Drive On-Ramp to SR 7/US 441/NW 2 Avenue Off-Ramp	Basic	7,667 / (5,978)	0.99 / (0.64)	44.4 / (22.4)	F / (C)
SR 7/US 441/NW 2 Avenue Off-Ramp	Diverge	7,667 / (5,978)	0.99 / (0.86)	39.3 / (32.8)	F / (D)
Florida Turnpike/SR 826 Off-Ramp	Diverge	6,426 / (5,369)	0.83 / (0.76)	33.2 / (29.3)	D / (D)
Florida Turnpike/SR 826 Off-Ramp to SR 7/US 441 On-Ramp	Basic	4,504 / (4,301)	0.59 / (0.62)	20.4 / (21.5)	C / (C)
SR 7/US 441 On-Ramp	Merge	5,385 / (5,519)	0.71 / (0.80)	40.9 / (57.2)	E / (E)
SR 7/US 441 On-Ramp to NW 167 Street On-Ramp	Basic	5,385 / (5,519)	0.71 / (0.80)	26.5 / (30.4)	D / (D)
NW 167 Street On-Ramp	Merge	6,336 / (6,366)	0.84 / (0.92)	71.0 / (109.2)	E / (E)
NW 167 Street On-Ramp to Managed Lanes Ingress	Basic	6,336 / (6,366)	0.84 / (0.92)	34.0 / (37.8)	D / (E)
Managed Lanes Ingress	Diverge	6,336 / (6,366)	0.84 / (0.92)	34.5 / (38.0)	D / (E)
Managed Lanes Ingress to Florida Turnpike/SR 826 On-Ramp	Basic	3,853 / (3,765)	0.51 / (0.54)	18.7 / (20.3)	C / (C)
Florida Turnpike/SR 826 On-Ramp	Merge	8,184 / (7,530)	0.85 / (0.84)	44.8 / (39.6)	F / (F)
Florida Turnpike/SR 826 On-Ramp to NW 151 Street On-Ramp	Basic	8,184 / (7,530)	0.64 / (0.84)	23.1 / (32.6)	C / (F)
NW 151 Street On-Ramp to Opa Locka Boulevard Off-Ramp	Weaving	8,821 / (8,369)	0.58 / (0.61)	5.2 / (10.1)	A / (B)
NW 125 Street Off-Ramp	Diverge	8,092 / (7,405)	0.87 / (0.64)	35.0 / (24.6)	F / (C)
NW 125 Street Off-Ramp to NW 135 Street On-Ramp	Basic	5,917 / (5,196)	0.49 / (0.60)	16.7 / (20.7)	B / (C)
NW 135 Street On-Ramp	Merge	6,104 / (5,227)	0.50 / (0.46)	18.7 / (16.8)	B / (B)
NW 135 Street On-Ramp to NW 125 Street On-Ramp	Basic	6,104 / (5,227)	0.50 / (0.46)	17.7 / (15.9)	B / (B)
NW 125 Street On-Ramp	Merge	7,210 / (6,083)	0.63 / (0.54)	23.5 / (20.4)	C / (C)
NW 125 Street On-Ramp to NW 119 Street On-Ramp	Basic	7,210 / (6,083)	0.63 / (0.73)	21.9 / (26.2)	C / (D)
NW 119 Street On-Ramp	Merge	7,286 / (6,782)	0.63 / (0.62)	24.0 / (23.6)	C / (C)
NW 119 Street On-Ramp to NW 95 Street Off-Ramp	Basic	7,286 / (6,782)	0.63 / (0.62)	22.1 / (21.8)	C / (C)
NW 95 Street Off-Ramp	Diverge	7,286 / (6,782)	0.63 / (0.62)	23.0 / (22.4)	C / (C)

Legend: AM Peak Hour (PM Peak Hour)
Note: Blue shading indicates anticipated to operate at LOS E or worse during at least one (1) of the peak periods.

Synchro Intersection Capacity Operational Analysis

Trafficware's *Synchro* (Version 10.0) software package was used to conduct analyses for ramp-terminal and adjacent intersections along the study area. Results were reported using the HCM 2010 output when possible, otherwise results were reported using the HCM 2000 output. The following sections summarize the operational analysis results for each interchange area along the corridor. Build improvements have been proposed at the study intersections to address failures associated with I-95 traffic; however, failures at movements not associated with I-95 traffic were not addressed as the focus of this project is to address the I-95 corridor. Intersection ID (IID) numbers were used to denote each intersection in a manner that is consistent with the Synchro operations model. The Measures of Effectiveness (MOEs) used in the analysis included LOS, delay, and queue length. The intersection analyses are presented in **Appendix B.**

Table 5 summarizes the intersection capacity analysis results for the AM and PM peak hours at the SR 5/US 1/South Dixie Highway interchange. As this intersection does not impact operations of I-95 no improvements are proposed for the Build scenario. The results indicate that the intersection is anticipated to operate at LOS E for the AM and PM peak periods. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 5: SR 5/US 1/S Dixie Highway – Intersection Analysis Results

IID	Roadway	Intersecting Road	Intersection Delay (s)		LOS	
			AM	PM	AM	PM
101	SW 16 Ave	SR 5/US 1/S Dixie Hwy	68.5	64.4	E	E

Source: Synchro (Version 10.0) Results

Table 6 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 5/US 1/S Dixie Highway intersection with SW 16 Avenue. The results indicate that the projected 95th percentile queue lengths exceed available storage for four (4) of the five (5) approach lane movements for at least one (1) peak period. The lanes in which queues exceed storage length have been shaded in blue.

Table 6: SR 5/US-1/S Dixie Highway – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	95th Pt. Queue (ft)	
						AM	PM
101	SW 16 Ave	SR 5/US 1/S Dixie Hwy	EB(3)	L	165(1)	300	1,050
				T	585(2)	3,125	725
			WB(3)	TR	-	1,250	2,775
			SB	L	130(2)	2,425	1,250
				R	95(2)	675	625

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(3) US 1 is aligned east-west through the SW 16 Avenue intersection. The EB approach corresponds to US 1 NB and the WB approach corresponds to US 1 SB
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 7 summarizes the intersection analysis results for the AM and PM peak hours at the SR 913/SW 26 Road/SW 25 Road interchange. The following improvements are recommended and have been included in the Build analysis:

Brickell Avenue & SW 26 Road/Rickenbacker Causeway

- Add one (1) eastbound through lane

I-95 SB Off-Ramp & SW 25 Road

- Add one (1) new southbound left-turn lane
- Restripe southbound inside through lane from shared through/left-turn to through

I-95 NB On-Ramp & SW 25 Road

- Restripe eastbound through lane as shared eastbound through/left-turn lane
- Restripe northbound left-turn lane as shared through/left-turn lane

The results indicate that one (1) of the six (6) intersections is anticipated to operate at LOS E for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 7: SR 913/SW 26 Road/SW 25 Road – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
201	SW 26 Rd	SB Off-Ramp	(4)		(4)	
202	SW 26 Rd	NB On-Ramp	(4)		(4)	
203	SW 26 Rd	Miami Ave	30.3	37.0	C	D
204	SW 26 Rd	Brickell Ave	20.6	28.8	C	C
205(+)	SW 25 Rd	SB Off-Ramp	37.3	84.5	D	C
206(+)	SW 25 Rd	NB On-Ramp	23.5	60.8	C	E

Source: Synchro (Version 10.0) Results
(4) Unsignalized intersection
(+) HCM 2000 results

Table 8 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 913/SW 26 Road/SW 25 Road interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 11 of the 25 approach lane movements for at least one (1) peak period. The lanes in which queues exceed capacity have been shaded in blue.

Table 8: SR 913/SW 26 Road/SW 25 Road – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
203	SW 26 Rd	Miami Ave	EB	L	150(1)	50	100
				T	670 (2)	475	575
			WB	L	90(1)	25	150
				T	290(2)	25	200
			NB	L	175(1)	100	375
				T	540(2)	100	125
			SB	L	145(1)	50	75
				T	260(2)	75	125
204	SW 26 Rd	Brickell Ave	EB	L	105(1)	150	250
				T	290(2)	300	275
			WB	T	-	75	325
			NB	T	735(2)	225	150
				R	735(2)	700	350
			SB	L	185(6)	50	150
				T	-	100	450
205(+)	SW 25 Rd	SB Off-Ramp	EB	T	100(2)	600	250
			WB	T	150(2)	75	400
			SB	L	1,000(7)	300	525
				T	1,000(7)	725	1,025
206(+)	SW 25 Rd	NB On-Ramp	EB	L	120(2)	825	725
				T	120(2)	325	850
			WB	T	300(2)	200	550
				R	300(2)	0	0
			NB	L	245(2)	0	0
				T	245(2)	150	275

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(6) Available storage length measured from the stop bar to the end of dual left-turn lanes
(7) Available storage length measured from stop bar to gore
(+) Synchro (Version 10.0) Results
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection.

Table 9 summarizes the intersection analysis results for the AM and PM peak hours at the SR 90/SW 7 Street/SW 8 Street interchange. The following improvements are recommended and have been included in the Build analysis:

SW 3rd Ave & SW 8 Street

- Added one (1) southbound through lane

SW 2nd Avenue & SW 8 Street

- Restripe eastbound right-turn lane as shared through/right-turn lane
- Restripe southbound approach to one (1) left-turn lane and one (1) shared through/left-turn lane

The results indicate that three (3) of the eight (8) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 9: SR 90/SW 7 Street/SW 8 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
301	SW 8 St / US 41 /SR 90	SW 5 Ave	76.0	54.4	E	D
302	SW 8 St / US 41 /SR 90	SW 4 Ave/SB Ramps	6.1	28.1	A	C
303	SW 8 St / US 41 /SR 90	NB On-Ramp 170	(8)		(8)	
304(+)	SW 8 St / US 41 /SR 90	SW 3 Ave NB Ramps	36.8	38.3	D	D
305	SW 8 St / US 41 /SR 90	SW 2 Ave	55.8	40.5	E	D
306(+)	SW 7 St / US 41 /SR 90	SW 4 Ave/SB Ramps	36.9	131.8	D	F
307	SW 7 St / US 41 /SR 90	SW 3 Ave NB Ramps	17.0	12.7	B	B
308	SW 7 St / US 41 /SR 90	SW 2 Ave	53.1	45.1	D	D

Source: Synchro (Version 10.0) Results
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 10 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 90/SW 7 Street/SW 8 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 22 of the 36 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 10: SR 90/SW 7 Street/SW 8 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
301	SW 8 St / US 41 / SR 90	SW 5 Ave	EB	L	500(2)	1,650	1,025
				T	500(2)	1,450	925
				R	500(2)	1,550	975
			NB	T/R	-	1,550	875
302	SW 8 St / US 41 / SR 90	SW 4 Ave / SB Ramps	EB	T	500(2)	25	225
				R	70(1)	25	275
			SB	L	290(2)	0	0
				T	290(2)	325	2,800
304(+)	SW 8 St / US 41 / SR 90	SW 3 Ave / NB Ramps	EB	T	440(2)	725	550
			NB	T	-	225	225
				R	180(1)	575	725
			SB	L	255(2)	25	50
305	SW 8 St / US 41 / SR 90	SW 2 Ave	EB	L	480(2)	1,975	750
				T	475(2)	875	575
				R	460(1)	1,025	600
			NB	T	180	400	175
				R	170(1)	450	200
			SB	L	275(1)	600	175
				T	275(1)	600	25
306(+)	SW 7 St / US 41 / SR 90	SW 4 Ave / SB Ramps	WB	L	465(2)	100	175
				T	465(2)	175	850
			SB	T	220(2)	400	325
			SWB	L	-	350	650
				R	-	850	1,075
307	SW 7 St / US 41 / SR 90	SW 3 Ave NB Ramps	WB	L	475(2)	25	75
				T	475(2)	25	50
				R	475(2)	25	50
			NB	L	100(1)	200	425
				T	250(2)	125	25
308	SW 7 St / US 41 / SR 90	SW 2 Ave	WB	L	485(2)	300	725
				T	485(2)	250	575
				R	485(2)	275	575
			NB	L	270(2)	1,450	300
				T	270(2)	325	50
			SB	T	-	550	1,400
				R	-	550	1,325

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection.

Table 11 summarizes the intersection analysis results for the AM and PM peak hours at the SR 970/Downtown Distributor interchange. The following improvements are recommended and have been included in the Build analysis:

Miami Avenue & SW 3 Street/SE 4 Street

- Restripe southbound approach to one (1) left-turn lane, one (1) shared through/left-turn lane, one (1) through lane, and one (1) shared through/right-turn lane

The results indicate that two (2) of the nine (9) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 11: SR 970/Downtown Distributor – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
401(+)	SW 3 St	Miami Ave	19.8	31.1	B	C
402	SE 4 St/SR 970 EB Off-Ramp	Fort Dallas Park Dr	0.0	0.0	A	A
403	SR 970 Off-Ramp	SE 2 Ave	33.1	37.1	C	D
404(+)	SR 970 Off-Ramp	Miami Ave	14.7	58.6	B	E
405	SR 970 On-Ramp	SE 2 Ave	(5)		(5)	
406	SW 2 St	Miami Ave	22.5	18.6	C	B
407	NB On-Ramp	Miami Ave	(8)		(8)	
408	SE 2 St	SE 1 Ave	44.1	143.5	D	F
409	SE 2 St	SE 2 Ave	31.5	20.5	C	C

Source: Synchro (Version 10.0) Results
(5) Intersection sign configuration not allowed in HCM analysis
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 12 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 970/Downtown Distributor interchanges. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 23 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 12: SR 970/Downtown Distributor – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
401(+)	SW 3 St	Miami Ave	EB	T	315(2)	75	100
			NB	L	105(1)	325	325
				R	105(1)	0	0
			SB	L	320(2)	100	350
				T	320(2)	275	375
402	SE 4 St/ SR 970 EB Off-Ramp	Fort Dallas Park Dr	SB	L	30	0	0
403	SR 970 Off-Ramp	SE 2 Ave	EB	T	700(7)	900	475
				R	700(7)	425	525
			SB	T	280(2)	350	450
404(+)	SR 970 Off-Ramp	Miami Ave	EB	R	625(7)	250	1,050
			SB	T	220(2)	150	100
406	SW 2 St	Miami Ave	WB	L	475(7)	650	850
				T	475(2)	575	700
			SB	T	240(2)	175	175
				R	240(2)	175	175
408	SE 2 St	SE 1 Ave	WB	T	475(2)	400	1,450
				R	475(2)	400	1,425
			NB	L	275(2)	2,150	4,075
				T	275(2)	50	250
409	SE 2 St	SE 2 Ave	WB	L	335(2)	25	200
				T	335(2)	25	225
			SB	T	230(2)	175	350
				R	225(2)	475	450

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(+) Synchro (Version 10.0) Results

Table 13 summarizes the intersection analysis results for the AM and PM peak hours at the NW 2 Street/NW 3 Street interchange. The following improvements are recommended and have been included in the Build analysis:

NW 3rd Court/I-95 SB Ramps & NW 2 Street

- Add one (1) westbound left-turn lane

I-95 NB Ramps & NW 3 Avenue & NW 2 Street

- Add one (1) northbound left-turn lane
- Restripe inside northbound shared through/left-turn lane as through lane

The results indicate that one (1) of the four (4) intersections is anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 13: NW 2 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
501	NW 2 St	NW 3 Ct/SB On-Ramp	28.4	37.7	C	D
502(+)	NW 2 St	NW 3 Ave/Off-Ramp	90.9	38.6	F	D
503	NW 3 St	NW 3 Ct	3.6	8.7	A	A
504	NW 3 St	NW 3 Ave	16.7	19.8	B	B

Source: Synchro (Version 10.0) Results
(+)HCM 2000 Results

Table 14 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 2 Street/NW 3 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 15 of the 25 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 14: NW 2 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	95 Pt. Queue (ft)	
						AM	PM
501	NW 2 St	NW 3 Ct/SB On-Ramp	EB	T	500(2)	50	25
				R	500(2)	125	50
			WB	L	145(2)	225	375
			SB	L	240(1)	375	50
				T	290(2)	525	650
502(+)	NW 2 St	NW 3 Ave/Off-Ramp	EB	L	145(2)	50	50
				T	145(2)	400	25
			WB	T	440(2)	25	300
				R	440(2)	0	50
			NB	L	250(7)	450	425
				T	700(7)	1,125	700
			NWB	L	320(2)	100	200
				R	225(7)	300	125
503	NW 3 St	NW 3 Ct	WB	L	145(2)	125	175
				T	145(2)	150	200
			SB	L	170(1)	25	100
				T	290(2)	25	250
				R	290(2)	0	0
504	NW 3 St	NW 3 Ave	EB	L	490(2)	75	100
				T	490(2)	550	250
			WB	T	145(2)	150	250
				R	145(2)	325	425
			NB	L	280(2)	225	425
				T	280(2)	150	300
				R	50(1)	200	50

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(+) Synchro (Version 10.0) Results

Table 15 summarizes the intersection analysis results for the AM and PM peak hours at the NW 8 Street interchange. The following improvements are recommended and have been included in the Build analysis:

602 – NW 3 Avenue/I-95 NB On-Ramp & NW 8 Street

- Add one (1) northbound through lane

The results indicate that one (1) of the two (2) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 15: NW 8 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
601	NW 8 St	NW 3 Ct/Off-Ramp	21.2	14.9	C	B
602	NW 8 St	NW 3 Ave/On-Ramp	52.5	61.5	D	E

Source: Synchro (Version 10.0) Results

Table 16 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 8 Street interchange. The results indicate that the projected 95th percentile queue lengths exceeded available storage for six (6) of the 12 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 16: NW 8 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
601	NW 8 St	NW 3 Ct/Off-Ramp	EB	T	135(2)	650	325
			WB	L	230(2)	50	100
				T	230(2)	75	175
			SB	L	145(1)	575	375
				T	-	425	300
				R	145(1)	500	325
602	NW 8 St	NW 3 Ave/On-Ramp	EB	L	255(2)	1,175	875
				T	240(2)	300	300
			WB	T	490(2)	275	400
			NB	L	625(2)	50	25
				T	625(2)	675	1,075
				R	275(1)	25	25

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 17 summarizes the intersection analysis results for the AM and PM peak hours at the proposed NW 29 Street/NW 32 Street interchange. The results indicate that all intersections are anticipated to operate at LOS D or better for both peak periods.

Table 17: NW 29 Street/NW 32 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay (s)		LOS	
			AM	PM	AM	PM
650	NW 32 St	NW 6 Ct/Off-Ramp	37.5	41.5	D	D
651	NW 32 St	NW 6 Ave/On-Ramp	35.9	35.9	D	D
652	NW 29 St	NW 6 Ct/Off-Ramp	31.5	41.0	C	D
653	NW 29 St	NW 6 Ave/On-Ramp	26.4	32.8	C	C

Source: Synchro (Version 10.0) Results

Table 18 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the proposed NW 29 Street/NW 32 Street interchange. The results indicate that the projected 95th percentile queue lengths exceeded available storage for six (6) of the 27 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 18: NW 29 Street/NW 32 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
650	NW 32 St	NW 6 Ct/Off-Ramp	EB	T	370(2)	350	325
				R	225(1)	0	0
			WB	L	275(2)	525	825
				T	275(2)	125	175
			SB	L	570(2)	325	325
				T	-	525	475
				R	570(2)	275	275
651	NW 32 St	NW 6 Ave/On-Ramp	EB	L	275(2)	275	225
				T	275(2)	525	350
			WB	T	775(2)	350	550
				R	775(2)	350	575
			NB	L	920(2)	275	450
				R	920(2)	300	275
652	NW 29 St	NW 6 Ct/Off-Ramp	EB	T	440(2)	625	900
			WB	T	265(2)	200	400
			SB	L	815(7)	525	525
				R	335(1)	450	425
653	NW 29 St	NW 6 Ave/On-Ramp	EB	L	265(2)	625	925
				T	265(2)	200	0
			WB	T	775(2)	150	125
				R	775(2)	150	125
			NB	L	720(7)	275	475
				T	720(7)	750	700
				R	720(7)	350	425

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 19 summarizes the intersection analysis results for the AM and PM peak hours at the NW 62 Street interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Provide new I-95 southbound access via a "U-turn" lane from northbound NW 5th Court under the I-95 bridge then connecting directly to I-95 southbound

NW 6th Avenue/I-95 SB Ramps & NW 62 Street

- Restripe inside westbound through lane at shared through/left-turn
- Add one (1) southbound through lane

NW 6th Avenue/I-95 NB Ramps/NW 5th Court & NW 62 Street

- Add one (1) eastbound left-turn lane
- Add one (1) westbound through lane
- Add one (1) northbound left-turn lane
- Add one (1) northbound right-turn lane

The results indicate that one (1) of the four (4) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 19: NW 62 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
701	NW 62 St	SR 7/NW 7 Ave	39.7	44.5	D	D
702	NW 62 St	SB Ramps	157.7	110.9	F	F
703	NW 62 St	NB Ramps	22.2	23.0	C	C
704	NW 62 St	NW 2 Ave	25.3	36.9	C	D

Source: Synchro (Version 10.0) Results

Table 20 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 62 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 25 of the 38 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 20: NW 62 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
701	NW 62 St	SR 7/NW 7 Ave	EB	L	120(1)	200	525
				T	585(2)	550	425
				R	600(2)	550	425
			WB	L	145(1)	250	100
				T	425(2)	575	425
				R	425(2)	600	400
			NB	L	145	200	100
				T	610(2)	425	625
				R	610(2)	425	200
			SB	L	130	150	100
				T	215(2)	600	600
				R	215(2)	625	600
702	NW 62 St	SB Ramps	EB	T	600(2)	1,550	1,050
				R	600(2)	1,800	1,250
			WB	L	250(2)	525	1,475
				T	250(2)	1,700	1,550
			SB	L	1,800(7)	2,200	1,250
				T	1,800(7)	500	575
				R	250	500	575
703	NW 62 St	NB Ramps	EB	L	250(2)	75	50
				T	250(2)	275	300
			WB	T	595(2)	200	400
				R	595(2)	250	425
			NB	L	1,205(7)	575	975
				T	1,205(7)	0	0
				R	-	250	725
704	NW 62 St	NW 2 Ave	EB	L	80(1)	75	150
				T	-	700	850
				R	260(2)	750	850
			WB	L	110(1)	50	75
				T	280(2)	225	325
				R	270(2)	225	350
			NB	L	70(1)	150	175
				T	580(2)	175	625
				R	110(1)	50	125
			SB	L	60(1)	50	50
				T	255(2)	225	350
				R	60	75	175

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 21 summarizes the intersection analysis results for the AM and PM peak hours at the SR 934/NW 79 Street/NW 81 Street interchange. The following improvements are recommended and have been included in the Build analysis:

NW 79 Street & NW 7 Avenue/SR 7

- Add one (1) northbound right-turn lane
- Restripe northbound shared through/right-turn lane to a through lane

NW 79 Street & NW 6 Court/I-95 SB On-Ramp

- Restripe westbound shared through/left-turn lane as through lane
- Add one (1) southbound through lane

NW 79 Street & NW 6 Avenue/I-95 NB Off-Ramp

- Restripe northbound shared through/right-turn lane as through lane

NW 81 Street & NW 7 Avenue/SR 7

- Restripe westbound through lane as shared through/right-turn lane

NW 81 Street & NW 6 Court/I-95 SB Off-Ramp

- Add one (1) westbound left-turn lane
- Add one (1) southbound through lane

NW 81 Street & NW 6 Avenue/I-95 NB On-Ramp

- Add one (1) northbound left-turn lane

The results indicate that two (2) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 21: SR 934/NW 79 Street/NW 81 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
901	NW 79 St / SR 934	SR-7/NW 7 Ave	44.3	67.1	D	E
902(+)	NW 79 St / SR 934	SB Ramps/NW 6th Ct	28.0	19.8	C	C
903(+)	NW 79 St / SR 934	NB Ramps/NW 6th Ave	29.3	73.4	C	E
904	NW 81 St	SR 7/NW 7 Ave	24.0	25.6	C	C
905(+)	NW 81 St	SB Ramps/NW 6th Ct	25.1	18.6	C	B
906(+)	NW 81 St	NB Ramps/NW 6th Ave	20.4	22.1	C	C

Source: Synchro (Version 10.0) Results
(+) HCM 2000 results

Table 22 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 934/NW 79 Street/NW 81 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 20 of the 35 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 22: SR 934/NW 79 Street/NW 82 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
901	NW 79 St/SR 934	SR-7/NW 7 Ave	EB	L	250	125	375
				T	595(2)	825	975
				R	595(2)	850	1,025
			WB	L	190(1)	75	175
				T	230(2)	200	250
				R	230(2)	225	250
			NB	L	120	200	25
				T	595(2)	275	875
				R	345(1)	350	250
			SB	L	160	475	950
				T	275(2)	1,475	250
				R	275(2)	250	25
902(+)	NW 79 St/SR 934	SB Ramps/NW 6 Ct	EB	T	225(2)	325	175
				R	225(2)	175	50
			WB	T	265(2)	100	75
			SB	L	500(2)	475	600
				T	585(2)	475	250
				R	585(2)	0	0
903(+)	NW 79 St/SR 934	NB Ramps/NW 6 Ave	EB	L	175(1)	250	375
				T	265(2)	225	200
			WB	T	265(2)	700	950
			NB	T	1,150(7)	375	500
				R	185(1)	0	0
904	NW 81 St	SR-7/NW 7 Ave	WB	L	250(2)	375	325
				T	250(2)	525	550
				R	250(2)	925	1,000
			NB	L	190	25	25
				T	590(2)	125	375
			SB	T	590(2)	600	300
				R	590(2)	650	325
905(+)	NW 81 St	SB Ramps/NW 6 Ct	WB	T	290(2)	150	75
			SB	T	960(7)	500	375
906(+)	NW 81 St	NB Ramps/NW 6 Ave	WB	T	280(2)	500	450
				R	280(2)	0	0
			NB	T	585(2)	100	200

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(+) Synchro (Version 10.0) Results

Table 23 summarizes the intersection analysis results for the AM and PM peak hours at the NW 95 Street interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Construct a Collector-Distributor system from NW 135 Street/Opa Locka Boulevard to NW 95 Street

NW 95 Street & I-95 SB Ramps

- Add one (1) southbound left-turn lane
- Add two (2) southbound through lanes

NW 95 Street & NW 6 Avenue/I-95 NB Off-Ramp

- Add one (1) northbound left-turn lane
- Restripe northbound shared through/left-turn lane to through lane
- Add one (1) northbound through lane
- Add one (1) northbound right-turn lane

The results indicate that all three (3) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 23: NW 95 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1001	NW 95 St	SR-7/NW 7 Ave	61.6	86.4	E	F
1002	NW 95 St	SB Ramps	143.4	215.2	F	F
1003	NW 95 St	NB Ramps	135.8	66.3	F	E

Source: Synchro (Version 10.0) Results

Table 24 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 95 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 16 of the 25 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 24: NW 95 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1001	NW 95 St	SR-7/NW 7 Ave	EB	L	115(1)	100	425
				T	595(2)	525	600
				R	90(1)	125	250
			WB	L	140(1)	775	300
				T	235(2)	325	375
				R	235(2)	50	300
			NB	L	160	375	175
				T	-	250	2,075
				R	-	375	2,350
			SB	L	150	325	300
				T	430(2)	1,475	250
				R	430(2)	1,675	275
1002	NW 95 St	SB Ramps	EB	T	225(2)	275	100
			WB	L	225(2)	2,675	2,450
				T	225(2)	25	50
			SB	L	255(1)	450	325
				T	2,300(7)	450	50
				R	255(1)	2,125	3,250
1003	NW 95 St	NB Ramps	EB	L	275(2)	2,800	1,725
				T	275(2)	25	150
			WB	T	1,930(2)	1,550	575
				R	1,930(2)	1,525	550
			NB	L	1,220(7)	525	450
				T	1,220(7)	100	175
				R	270(2)	300	375

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 25 summarizes the intersection analysis results for the AM and PM peak hours at the SR 932/NW 103 Street interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Construct a Collector-Distributor system from NW 135 Street/Opa Locka Boulevard to NW 95 Street

NW 103 Street & NW 7 Avenue/SR 7

- Restripe westbound shared through/right-turn lane to through lane
- Add one (1) westbound right-turn lane

NW 103 Street & I-95 SB Ramps

- Add one (1) westbound left-turn lane
- Add one (1) southbound left-turn lane
- Add one (1) southbound right-turn lane

NW 103 Street & NW 6 Avenue/I-95 NB Off-Ramp

- Add one (1) eastbound left-turn lane
- Add one (1) northbound shared through/right-turn lane

The results indicate that one (1) of the four (4) intersections is anticipated to operate at LOS F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 25: SR 932/NW 103 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1101	NW 103 St	SR-7/NW 7 Ave	113.6	365.5	F	F
1102	NW 103 St	SB Ramps	31.3	29.3	C	C
1103	NW 103 St	NB Ramps	26.5	19.0	C	B
1104	NW 103 St	NW 5 Ave	24.8	15.7	C	B

Source: Synchro (Version 10.0) Results

Table 26 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 932/NW 103 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 20 of the 34 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 26: SR 932/NW 103 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1101	NW 103 St	SR-7/NW 7 Ave	EB	L	360(1)	800	5,025
				T	595(2)	700	725
				R	595(2)	1,150	1,250
			WB	L	180(1)	325	75
				T	245(2)	450	400
				R	205(2)	175	275
			NB	L	115	100	1,775
				T	-	150	4,350
				R	-	175	4,975
			SB	L	125	225	1,725
				T	575(2)	2,075	250
				R	575(2)	2,350	250
1102	NW 103 St	SB Ramps	EB	T	230(2)	175	125
				R	230(2)	0	0
			WB	L	125(1)	425	250
				T	240(2)	125	25
			SB	L	225(1)	400	325
				T	-	0	0
				R	225(1)	725	650
1103	NW 103 St	NB Ramps	EB	L	125(2)	150	100
				T	240(2)	175	225
			WB	T	600(2)	350	275
				R	170(2)	275	250
			NB	L	250(1)	300	350
				T	-	100	0
				R	250(1)	1,025	200
1104	NW 103 St	NW 5 Ave	EB	L	175	25	50
				T	425(2)	550	275
				TR	425(2)	575	350
			WB	L	200(1)	200	200
				T	985(2)	375	275
				TR	985(2)	375	275
			NB	L	205(2)	550	475
			SB	L	280(2)	225	150

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 27 summarizes the intersection analysis results for the AM and PM peak hours at the SR 924/NW 119 Street interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Construct a Collector-Distributor system from NW 135 Street/Opa-Locka Boulevard to NW 95 Street

NW 119 Street & NW 7 Avenue/SR 7

- Add one (1) westbound right-turn lane
- Restripe westbound shared through/right-turn lane to through lane

NW 119 Street & NW 6 Avenue/I-95 NB Off-Ramp

- Add one (1) northbound right-turn lane
- Restripe northbound shared left/through/right-turn lane to shared through/left-turn

The results indicate that one (1) of the four (4) intersections is anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 27: SR 924/NW 119 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1201	NW 119 St / SR 924	SR-7/NW 7 Ave	76.8	304.7	E	F
1202	NW 119 St / SR 924	SB On-Ramp	(8)		(8)	
1203	NW 119 St / SR 924	NB Off-Ramp	9.1	6.5	A	A
1204	NW 119 St / SR 924	NW 5 Ave	8.7	6.0	A	A

Source: Synchro (Version 10.0) Results
(8) Free flow, uncontrolled intersection

Table 28 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 924/NW 119 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for eight (8) of the 29 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 28: SR 924/NW 119 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1201	NW 119 St/SR 924	SR-7/NW 7 Ave	EB	L	305(1)	450	3,250
				T	555(2)	450	300
				R	585(2)	475	325
			WB	L	250(1)	75	100
				T	555(2)	375	600
				R	-	50	150
			NB	L	290(1)	175	4,250
				T	2,525(2)	150	3,700
				R	2,525(2)	150	4,125
			SB	L	200(1)	100	50
				T	1,850(2)	1,725	400
				R	1,850(2)	1,975	400
1203	NW 119 St/SR 924	NB Off-Ramp	EB	L	200(2)	25	0
				T	200(2)	50	25
			WB	T	600(2)	200	50
				R	600(2)	200	50
			NB	L	325(1)	300	225
				T	-	0	0
				R	325(1)	0	0
1204	NW 119 St/SR 924	NW 5 Ave	EB	L	175	25	25
				T	595(2)	275	75
				R	595(2)	300	100
			WB	L	175	125	25
				T	-	150	25
				R	-	150	25
			NB	L	125(1)	125	150
				R	205(2)	100	175
			SB	L	120	25	25
				R	245(2)	275	50

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 29 summarizes the intersection analysis results for the AM and PM peak hours at the SR 922/NW 125 Street interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Construct a Collector-Distributor system from NW 135 Street/Opa-Locka Boulevard to NW 95 Street

NW 125 Street & I-95 SB Ramps

- Add one (1) westbound left-turn lane
- Add one (1) southbound left-turn lane

NW 125 Street & I-95 NB Ramps

- Add one (1) westbound right-turn lane
- Restripe westbound shared through/right-turn lane to through lane
- Add two (2) northbound right-turn lanes
- Restripe northbound shared through/right-turn lane to through lane

The results indicate one (1) of the three (3) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 29: SR 922/NW 125 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1301	SR 922/NW 125 St	SR 7	25.3	380.1	C	F
1302	SR 922/NW 125 St	SB Ramps	28.5	23.1	C	C
1303	SR 922/NW 125 St	NB Ramps	6.5	4.0	A	A

Source: Synchro (Version 10.0) Results

Table 30 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 922/NW 125 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 13 of the 26 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 30: SR 922/NW 125 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1301	SR 922/NW 125 St	SR-7/NW 7 Ave	EB	L	145(1)	50	75
				T	590(2)	125	100
				R	145(1)	125	100
			WB	L	225(1)	400	350
				T	245(2)	0	425
				R	245(2)	150	750
			NB	L	200(1)	25	25
				T	1,800(2)	225	5,450
				R	1,800(2)	275	6,150
			SB	L	205(1)	325	1,025
				T	-	625	125
				R	250(2)	700	150
1302	SR 922/NW 125 St	SB Ramps	EB	T	270(2)	550	225
				R	270(2)	550	275
			WB	L	240(2)	475	225
				T	240(2)	125	150
			SB	L	315(1)	500	425
				T	-	0	0
				R	315(1)	425	550
1303	SR 922/NW 125 St	NB Ramps	EB	L	240(2)	275	125
				T	240(2)	25	25
			WB	T	-	325	175
				R	-	275	50
			NB	L	170(1)	50	75
				T	-	25	50
				R	240(1)	50	25

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 31 summarizes the intersection analysis results for the AM and PM peak hours at the SR 916/NW 135 Street/Opa-Locka Boulevard interchange. The following improvements are recommended and have been included in the Build analysis:

Interchange

- Construct a Collector-Distributor system from NW 135 Street/Opa-Locka Boulevard to NW 95 Street

NW 135 Street & I-95 SB On-Ramp/NW 6 Court

- Add one (1) eastbound through lane

NW 135 Street & I-95 NB Off-Ramp/NW 6 Avenue

- Add one (1) eastbound left-turn lane
- Add one (1) eastbound through lane
- Add one (1) northbound through lane
- Add one (1) northbound right-turn lane
- Restripe northbound shared through/right-turn lane to through lane

Opa-Locka Boulevard & NW 6 Avenue/I-95 NB On-Ramp

- Add one (1) northbound left-turn lane
- Add one (1) northbound through lane

The results indicate that three (3) of the six (6) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 31: SR 916/NW 135 Street/Opa-Locka Boulevard – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1401	NW 135 St / SR 916	SR-7/NW 7 Ave	17.4	403.5	B	F
1402(+)	NW 135 St / SR 916	SB Ramps	25.4	22.2	C	C
1403(+)	NW 135 St / SR 916	NB Ramps	16.8	17.3	B	B
1404	Opa Locka Blvd / SR 916	SR-7/NW 7 Ave	77.0	96.9	E	F
1405(+)	Opa Locka Blvd / SR 916	SB Ramps	21.2	15.7	C	B
1406(+)	Opa Locka Blvd / SR 916	NB Ramps	86.8	45.1	F	D

Source: Synchro (Version 10.0) Results
(+) HCM 2000 results

Table 32 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 916/NW 135 Street/ Opa-Locka Boulevard interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 11 of the 28 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 32: SR 916/NW 135 Street/Opa-Locka Boulevard – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1401	NW 135 St/SR 916	SR-7/NW 7 Ave	EB	L	205(1)	75	200
				T	-	425	475
				R	255(1)	175	100
			NB	T	280(2)	150	6,225
				R	280(2)	425	7,550
			SB	L	130(1)	175	825
				T	245(2)	425	150
1402(+)	NW 135 St/SR 916	SB Ramps	EB	T	305(2)	350	350
				R	215(1)	50	25
			SB	L	330(1)	150	175
				T	450(2)	150	175
1403(+)	NW 135 St/SR 916	NB Ramps	EB	L	205(2)	100	125
				T	205(2)	50	75
			NB	T	-	400	375
				R	-	275	275
1404	Opa Locka Blvd/SR 916	SR-7/NW 7 Ave	WB	L	260(2)	425	300
				T	260(2)	500	300
				R	260(2)	75	50
			NB	L	205(1)	275	3,800
				T	445(2)	50	75
			SB	T	-	1,800	350
				R	-	2,125	350
1405(+)	Opa Locka Blvd/SR 916	SB Ramps	WB	L	225(2)	75	50
				T	225(2)	500	75
			SB	T/R	1,060(7)	275	400
1406(+)	Opa Locka Blvd/SR 916	NB Ramps	WB	T	-	250	200
				R	285(1)	525	650
			NB	T	430(2)	1,125	925

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area

of the intersection

Table 33 summarizes the intersection analysis results for the AM and PM peak hours at the NW 151 Street interchange. No improvements are recommended at this interchange. The results indicate that one (1) of the three (3) intersections are anticipated to operate at LOS E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 33: NW 151 Street – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1501	NW 151 St	SR 7	21.8	23.5	C	C
1502	NW 151 St	SB On-Ramp	(5)		(5)	
1503(+)	NW 151 St	NB Off-Ramp	130.4	44.3	F	D

Source: Synchro (Version 10.0) Results
(5) Intersection sign configuration not allowed in HCM analysis
(+) HCM 2000 results

Table 34 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the NW 151 Street interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for four (4) of the 18 approach lane movements for at least one (1) peak period.

Table 34: NW 151 Street – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1501	NW 151 St	SR-7/NW 7 Ave	EB	L	150(1)	100	275
				T	-	100	175
				R	150(1)	100	200
			WB	L	260(1)	350	200
				T	580(2)	175	50
				R	580(2)	225	100
			NB	L	120(1)	25	25
				T	-	150	375
				R	-	175	375
			SB	L	135(1)	75	125
				T	-	175	125
				R	-	200	125
1503(+)	NW 151 St	NB Off-Ramp	EB	L	210(2)	50	250
				T	220(2)	50	75
			WB	R	-	100	250
			NB	L	265(1)	50	225
				T	1,025(7)	125	350
				R	265(1)	25	25

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(-) Available storage length is significantly greater than 95th percentile queue, and is outside of the influence area of the intersection

Table 35 summarizes the intersection analysis results for the AM and PM peak hours at the Golden Glades Park-and-Ride Lot/South Express Ramps interchange. The following improvements are recommended and have been included in the Build analysis:

I-95 SB Of-Ramp at NW 7 Avenue (GGI)

- Shift interchange to the south to align with Centre Lake Apartments
- Signalize intersection

NW 2 Avenue & NW 167 Avenue & I-95 NB On-Ramp

- Add one (1) westbound right-turn lane
- Restripe westbound through/right-turn lane to though
- Restripe northbound though lane to left-turn lane

NW 7 Avenue extension & NW 4 Avenue

- Add one (1) northbound right-turn lane
- Restripe northbound shared left/through/right-turn lane to shared through/left-turn lane

The results indicate that one (1) of the six (6) intersections are anticipated to operate at LOS F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 35: Golden Glades Park & Ride Lot/SB Express Ramps – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1601(+)	SR 7	GGI SB Off-Ramp	18.7	24.5	B	C
1602	SR 7	Park and Ride Dr/NW 16000 Blk	13.2	13.1	B	B
1603(+)	NW 167 St	NW 2 Ave	222.3	738.8	F	F
1604	NW 167 St	Miami Ave	12.0	30.9	B	C
1605	NW 7 Ave Ext	Turnpike NB On-Ramp	(8)		(8)	
1606(+)	NW 7 Ave Ext	NW 4 Ave & NW 171 St	25.9	39.2	C	D

Source: Synchro (Version 10.0) Results
(8) Free flow, uncontrolled intersection
(+) HCM 2000 results

Table 36 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the Golden Glades Park and Ride Lot/South Express Ramps interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for six (6) of the 40 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 36: Golden Glades Park & Ride Lot/SB Express Ramps – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1601(+)	SR 7/NW 7 Ave	GGI SB Off-Ramp	WB	L	520(11)	475	75
				R	630(7)	0	0
			NB	T	-	175	400
			SB	T	-	200	200
1602	SR 7/NW 7 Ave	Park and Ride Dr/NW 16000 Blk	EB	L	230(2)	75	50
				T	230(2)	0	75
			WB	L	105(2)	25	0
				T	105(2)	25	25
			NB	L	230(1)	25	25
				T	-	225	225
			SB	L	220(1)	50	75
				T	-	350	125
1603(+)	SR 826/NW 167 St	NW 2 Ave	EB	L	-	550	725
				T	-	750	1,300
				R	300(1)	0	0
			WB	L	310(1)	50	150
				T	1,225(2)	650	800
				R2	220(1)	0	0
			NB	L	500(2)	950	775
				T	500(2)	125	125
			SB	T	610(1)	350	975
1604	SR 826/NW 167 St	Miami Ave	EB	L	275(1)	50	75
				T	-	225	625
				R	-	225	675
			WB	L	315(1)	125	200
				T	-	300	550
				R	-	325	600
			NB	L	180(1)	300	250
				R	155(1)	325	575
			SB	L	-	100	175
				R	105(1)	175	225
1606(+)	NW 7 Ave Ext at NW 4 Ave	NW 171 St	NB	L	-	200	125
			SEB	T	-	250	125
				R	-	225	50
			NWB	T	-	225	375
			NEB	L	270(1)	50	550
				T	-	450	425
			SWB	L	200(1)	75	75
				T	-	475	850
				R	300(1)	0	50

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(7) Available storage length measured from stop bar to gore
(11) Available storage length is average of triple lanes; from stop bar to end of taper, and from stop bar to gore

Table 37 summarizes the results for the signalized intersection analyses for the AM and PM peak hours at the SR 860/NE 183 Street/Miami Gardens Drive interchange. The following improvements are recommended and have been included in the Build analysis:

SR 860/Miami Gardens Drive & I-95 SB Ramps/NE 6 Avenue

- Reconfigure intersection for new interchange layout eliminating north leg resulting in a T-intersection with westbound turbo lanes

SR 860/Miami Gardens Drive at I-95 NB Ramps

- Add one (1) eastbound through lane
- Add one (1) southbound left-turn lane

The results indicate that one (1) of the three (3) intersections are anticipated to operate at E or F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 37: SR 860/NE 183 Street/Miami Gardens Drive – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay(s)		LOS	
			AM	PM	AM	PM
1701	Miami Gardens Dr / SR 860	NE 2 Ct	20.2	25.7	C	C
1702	Miami Gardens Dr / SR 860	SB Ramps	31.8	46.9	C	D
1703	Miami Gardens Dr / SR 860	NB Ramps	45.5	291.2	D	F

Source: Synchro (Version 10.0) Results

Table 38 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the SR 860/NE 183 Street/Miami Gardens interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for five (5) of the 20 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 38: SR 860/NE 183 Street/Miami Gardens Drive – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1701	Miami Gardens Dr/SR 860	NE 2 Ct	EB	L	165(1)	75	50
				T	245(2)	625	550
				R	245(2)	700	600
			WB	L	230(1)	100	50
				T	-	325	475
				R	-	325	500
			NB	L	110(1)	25	250
				R	720(2)	175	575
			SB	L	-	175	225
				R	-	150	225
1702	Miami Gardens Dr/SR 860	SB Ramps	EB	T	-	350	450
			WB	L	370(1)	225	300
				T	770(2)	50	175
			NB	L	-	775	1,200
				R	-	850	650
1703	Miami Gardens Dr/SR 860	NB Ramps	EB	L	500(12)	775	3,125
				T	790(2)	25	0
			WB	T	1,785(2)	725	3,075
			SB	L	-	500	1,000
				R	230(1)	0	0

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(12) Available storage length measured from the stop bar to the end of dual left-turn lanes

Table 39 summarizes the intersection analysis results for the AM and PM peak hours at the Ives Dairy Road interchange. The following improvements are recommended and have been included in the Build analysis:

Ives Dairy Road & I-95 Ramps

- Construct a new Diverging Diamond Interchange

Ives Dairy Road & Highland Lakes Boulevard

- Add one (1) eastbound left-turn lane
- Restripe outside eastbound through lane as shared through/right-turn lane

The results indicate that one (1) of the six (6) intersections are anticipated to operate at LOS F for at least one (1) peak period. Intersections anticipated to operate at LOS E or worse during at least one (1) of the peak periods are shown in blue.

Table 39: Ives Dairy Road – Intersection Analysis Results

IID	Roadway	Intersecting Road	Delay		LOS	
			AM	PM	AM	PM
1801	Ives Dairy Rd	NE 16 Ave	47.5	38.0	D	D
1802(+)	Ives Dairy Rd	West Crossover	32.2	27.7	C	C
1803(+)	Ives Dairy Rd	SB Ramps	12.3	7.3	B	A
1804(+)	Ives Dairy Rd	NB Ramps	4.3	6.9	A	A
1805(+)	Ives Dairy Rd	East Crossover	44.2	42.3	D	D
1806	Ives Dairy Rd	Highland Lakes Blvd	80.9	117.7	F	F

Source: Synchro (Version 10.0) Results
(+) HCM 2000 results

Table 40 summarizes queueing analysis results and available storage values for the AM and PM peak hours at the Ives Dairy Road interchange. The results indicate that the projected 95th percentile queue lengths exceed available storage for 12 of the 31 approach lane movements for at least one (1) peak period. The lane approach movements in which queues exceeded storage have been shaded in blue.

Table 40: Ives Dairy Road – Queueing Analysis Results

IID	Roadway	Intersecting Road	Approach	Movement	Available Storage (ft)	Queue (ft)	
						AM	PM
1801	Ives Dairy Rd	NE 16 Ave	EB	L	145(1)	25	50
				T	260(2)	1,250	625
				R	260(2)	1,425	700
			WB	L	370(1)	825	125
				T	1,050(2)	450	1,200
				R	1,050(2)	475	2,100
			NB	L	100(1)	25	75
				T	-	0	25
				R	75(1)	75	400
			SB	L	-	450	300
				R	520(1)	50	75
1802	Ives Dairy Rd	West Crossover	EB	T	1,010(2)	500	425
			NWB	T	390(2)	175	150
1803	Ives Dairy Rd	SB Ramps	EB	T	65(2)	0	0
			SB	L	1,120(11)	275	425
1804	Ives Dairy Rd	NB Ramps	WB	T	730(2)	25	25
			NWB	L	1,340(14)	75	150
1805	Ives Dairy Rd	East Crossover	EB	T	390(2)	600	825
			SWB	T	800(2)	450	350
1806	Ives Dairy Rd	Highland Lakes Blvd	EB	L	440(10)	400	600
				T	730(2)	1,100	950
				R	730(2)	1,325	1,150
			WB	L	355(1)	25	25
				T	2,685(2)	1,875	2,275
				R	2,685(2)	2,125	2,550
			NB	L	380(13)	575	375
				T	-	0	0
				R	-	0	0
			SB	L	260(10)	50	25
				T	-	75	100
				R	270(1)	1,850	1,900

(1) Available storage length measured from the stop bar to end of taper
(2) Available storage length measured from stop bar to upstream intersection
(10) Available storage length is average of dual left turn lanes; measured from stop bar to each respective end of taper
(11) Available storage length is average of triple lanes; from stop bar to end of taper, and from stop bar to gore
(13) Available storage length is average of dual lanes, and shared through-left lane; measured from stop bar to point of convergence upstream
(14) Available storage length is average of dual lanes; from stop bar to end of taper, and from stop bar to gore

CONCLUSION

Capacity analyses were performed to assess the operational conditions of the intersections, freeway corridor, and interchange influence areas within the study corridor. Capacity analyses were conducted with software based on the HCM (2000/2010 Editions), as applicable and where feasible. Density, LOS, delay, V/C ratio, queue length were among the Measures of Effectiveness (MOEs) used in the evaluation of the corridor's operations.

The Refined Build Concept utilized in this analysis minimized potential right-of-way acquisition at the direction of FDOT D6, resulting in no additional general purpose lanes capacity improvements (but one (1) additional express lane in each direction). Therefore, although additional mainline capacity was allocated to the I-95 corridor via the Express Lanes, the results indicate multiple mainline failures along Interstate 95 during both the AM peak hour and the PM peak hour. Most failures identified in the No-Build analysis for the mainline lanes remain.

Additionally, some improvements were proposed at study intersections to address failures associated with I-95 traffic. Improvements were proposed for deficient approaches where traffic from those approaches would impact traffic accessing/exiting I-95. However, failures at movements not associated with I-95 traffic (i.e. parallel north-south movement at adjacent intersections) were not addressed as the focus of this project is to address the I-95 corridor. Also, including geometric improvements not associated with I-95 traffic is not consistent with the FDOT D6 directive to minimize right-of-way acquisition.

Appendix A
HCS Freeway Analyses

HCS 2010 Freeway Facilities

Project Properties

Analyst		**Freeway Name**	AC	**Analysis Period**	AM Peak
Analysis Date	7/11/2019 8:50:56 AM	**From**	0.000	**Version Date**	5/15/15
Agency	FR Aleman	**To**	8.013		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Southern Section of I95 NB Corridor- (MM 0.000 to 8.013) From START of Project on US-1 Mainline to NW 95 ST- Build				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.26800**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	US-1 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3834	Level	3464	4.27	0.00	2	70
2		WB Rcknbckr Cswy ONR	On Ramp	1500	Level	6073	4.81	0.00	2	70
3	WB Rcknbckr Cswy ONR	SW 8 ST OFR	Basic Segment	62	Level	6073	4.81	0.00	3	70
4		SW 8 ST OFR	Off Ramp	1500	Level	6073	4.81	0.00	3	70
5	SW 8 ST OFR	East SW 8 ST ONR	Basic Segment	982	Level	5766	4.89	0.00	3	70
6		East SW 8 ST ONR	On Ramp	1500	Level	6640	5.09	0.00	3	70
7		W SW 8 ST ONR	On Ramp	1500	Level	7597	5.26	0.00	3	70
8	SW 7 ST	Dwtwn/ SR 970 OFR	Weaving	2387	Level	8415	5.09	0.00	3	70
9		NW 2 ST OFR	Off Ramp	1500	Level	7810	5.37	0.00	3	70
10	NW 2 ST OFR	N Miami Ave ONR	Basic Segment	597	Level	6241	6.05	0.00	3	70
11	N Miami Ave ONR	EB I-395 OFR	Weaving	2519	Level	8178	7.84	0.00	3	70
12	EB I-395 OFR	WB I-395 OFR	Basic Segment	99	Level	7297	7.98	0.00	3	70
13		WB I-395 OFR	Off Ramp	1500	Level	7297	7.98	0.00	3	70
14	WB I-395 OFR	SW 3 AVE / 8 ST ONR	Basic Segment	100	Level	5851	8.93	0.00	3	70
15	SW 3 Ave/ 8 ST ONR	Flyover Ramp OFR	Weaving	1890	Level	8144	7.87	0.00	3	70
16	Flyover Ramp OFR	I-395/ SR 836 ONR	Basic Segment	1172	Level	6132	9.39	0.00	3	70
17		I-395/ SR836 ONR	On Ramp	1500	Level	9892	9.96	0.00	3	70
18	I-395/ SR 836 ONR	SR 112 OFR	Basic Segment	359	Level	9892	9.96	0.00	3	70
19		SR 112 OFR	Off Ramp	1500	Level	9892	9.96	0.00	3	70
20		Managed Lanes OFR	Off Ramp	1500	Level	8509	10.77	0.00	3	70
21	Managed Lanes OFR	NW 29 ST ONR	Basic Segment	2228	Level	5838	15.63	0.00	3	70
22		NW 29 ST ONR	On Ramp	1500	Level	6993	15.25	0.00	3	70
23	NW 29 ST ONR	I-195 ONR	Basic Segment	1774	Level	6993	15.25	0.00	3	70
24		EB I-195 ONR	On Ramp	1500	Level	8961	14.36	0.00	3	70
25	EB I-95 ONR	NW62 ST OFR	Basic Segment	576	Level	8961	14.36	0.00	3	70
26		NW 62 ST ONR	Off Ramp	1500	Level	8961	14.36	0.00	4	70
27	NW 62 ST OFR	NW62 ONR	Basic Segment	3384	Level	7925	15.00	0.00	4	70
28		NW 62 ST ONR	On Ramp	1030	Level	9096	13.47	0.00	4	70
29	NW 62 ST ONR	NW 79 ST OFR	Ramp Overlap	940	Level	9096	13.47	0.00	3	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	2609	5.52	0.00	2	1500	50
4	Off Ramp	307	3.26	0.00	2	190	50
6	On Ramp	874	6.41	0.00	1	230	50
7	On Ramp	957	6.41	0.00	1	1500	40
9	Off Ramp	1569	2.68	0.00	1	300	50
13	Off Ramp	1446	4.12	0.00	1	450	50
17	On Ramp	3760	10.90	0.00	2	360	50
19	Off Ramp	1383	4.98	0.00	1	570	50
20	Off Ramp	2671	0.15	0.00	2	450	50
22	On Ramp	1155	13.30	0.00	1	1200	50
24	On Ramp	1968	11.20	0.00	2	1000	50
26	Off Ramp	1036	9.46	0.00	2	450	50
28	On Ramp	1171	3.16	0.00	1	1030	50
30	Off Ramp	891	9.54	0.00	2	545	50
32	On Ramp	1656	4.22	0.00	1	1065	50
34	Off Ramp	961	7.91	0.00	1	210	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
8	0.050	818	3.60	0.00	1	50	605	1.49	0.00	1	50
11	0.050	1937	13.60	0.00	1	50	881	6.70	0.00	1	50
15	0.050	2293	5.15	0.00	1	50	2012	3.23	0.00	1	50

30		NW 79 ST OFR	Off Ramp	1030	Level	9096	13.47	0.00	3	70
31	NW 79 ST OFR	NW 81 ST ONR	Basic Segment	2619	Level	8205	13.90	0.00	3	70
32		NW 81 ST ONR	On Ramp	1500	Level	9861	12.28	0.00	3	70
33	NW 81 ST ONR	NW 95 ST OFR	Ramp Overlap	354	Level	9861	12.28	0.00	3	70
34		NW 95 ST OFR	Off Ramp	1500	Level	9861	12.28	0.00	3	70

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
8	TwoSide	1383	0	0	0	4
11	OneSide	2519	2	1	1	0
15	OneSide	1890	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	US-1 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3464	3480	4800	4700	0.74	0.74	0	66.1	26.9	26.3	0.66	0.62	0.0	0.0	628.8	631.7	9.6	0.5	D
2		WB Rcknbckr Cswy ONR	On Ramp	6073	3958	4800	4687	1.30	0.84	-1903	59.3	33.6	32.8	0.29	0.24	0.0	8.5	431.3	281.1	4.7	0.7	F
3	WB Rcknbckr Cswy ONR	SW 8 ST OFR	Basic Segment	6073	3949	7200	7031	0.86	0.56	62	22.9	57.5	56.1	0.03	0.01	0.0	0.0	17.8	11.6	0.5	0.3	F
4		SW 8 ST OFR	Off Ramp	6073	3742	7200	7031	0.86	0.53	1500	20.2	61.7	60.2	0.84	0.24	0.6	0.6	431.3	265.8	13.1	9.3	F
5	SW 8 ST OFR	East SW 8 ST ONR	Basic Segment	5766	3386	7200	7028	0.82	0.48	982	16.1	70.2	68.5	0.69	0.16	0.5	0.5	268.1	157.4	9.8	7.5	F
6		East SW 8 ST ONR	On Ramp	6640	4066	7200	7021	0.95	0.58	1500	18.9	71.7	69.9	0.90	0.24	0.7	1.4	471.6	288.8	15.3	11.2	F
7		W SW 8 ST ONR	On Ramp	7597	4920	7200	7016	1.08	0.70	1500	24.6	66.7	65.0	0.69	0.24	0.5	0.5	539.6	349.4	14.2	9.2	F
8	SW 7 ST	Dwtwn/ SR 970 OFR	Weaving	8415	5700	5857	5712	1.47	1.00	0	65.3	10.9	10.7	0.42	0.39	0.0	0.0	951.1	644.2	9.9	0.7	F
9		NW 2 ST OFR	Off Ramp	7810	5280	7200	7012	1.11	0.75	0	56.5	32.0	31.1	0.30	0.24	0.1	0.1	554.7	375.0	6.6	1.3	F
10	NW 2 ST OFR	N Miami Ave ONR	Basic Segment	6241	4260	7200	6989	0.89	0.61	0	67.5	21.7	21.0	0.10	0.10	0.0	0.0	176.4	120.4	1.8	0.1	C
11	N Miami Ave ONR	EB I-395 OFR	Weaving	8178	5689	6432	6189	1.32	0.92	-15685	42.9	58.2	56.0	0.67	0.41	0.3	0.3	975.4	678.5	15.8	6.1	F
12	EB I-395 OFR	WB I-395 OFR	Basic Segment	7297	5017	7200	6924	1.05	0.72	99	29.2	57.2	55.0	0.04	0.02	0.0	0.0	34.2	23.5	0.8	0.5	F
13		WB I-395 OFR	Off Ramp	7297	4905	7200	6924	1.05	0.71	1500	25.8	63.3	60.9	0.66	0.24	0.4	0.4	518.3	348.4	13.5	8.5	F
14	WB I-395 OFR	SW 3 AVE / 8 ST ONR	Basic Segment	5851	3900	7200	6892	0.85	0.57	100	16.9	77.0	73.7	0.07	0.02	0.1	0.1	27.7	18.5	1.1	0.8	F
15	SW 3 Ave/ 8 ST ONR	Flyover Ramp OFR	Weaving	8144	4680	4883	4698	1.73	1.00	0	36.6	70.9	68.2	0.59	0.31	0.3	14.7	728.8	418.8	11.5	5.5	F
16	Flyover Ramp OFR	I-395/ SR 836 ONR	Basic Segment	6132	3540	7200	6877	0.89	0.51	0	67.2	18.4	17.6	0.20	0.19	0.0	0.0	340.3	196.4	2.9	0.1	C
17		I-395/ SR836 ONR	On Ramp	9892	5640	7200	6858	1.44	0.82	0	48.4	39.4	37.5	0.35	0.24	0.1	6.0	702.6	400.6	8.3	2.6	F
18	I-395/ SR 836 ONR	SR 112 OFR	Basic Segment	9892	5640	7200	6858	1.44	0.82	0	63.1	31.3	29.8	0.06	0.06	0.0	0.0	168.1	95.9	1.5	0.2	F
19		SR 112 OFR	Off Ramp	9892	5640	7200	6858	1.44	0.82	0	59.6	33.1	31.6	0.29	0.24	0.0	0.0	702.6	400.6	6.7	1.0	F
20		Managed Lanes OFR	Off Ramp	8509	4860	7200	6832	1.25	0.71	0	57.6	29.6	28.1	0.30	0.24	0.1	0.1	604.3	345.2	6.0	1.1	F
21	Managed Lanes OFR	NW 29 ST ONR	Basic Segment	5838	3300	7200	6678	0.87	0.49	0	69.4	17.1	15.9	0.36	0.36	0.0	0.0	615.9	348.1	5.0	0.0	B
22		NW 29 ST ONR	On Ramp	6993	4500	7200	6690	1.05	0.67	0	57.9	27.3	25.4	0.29	0.24	0.1	0.1	496.7	319.6	5.5	1.0	F
23	NW 29 ST ONR	I-195 ONR	Basic Segment	6993	4500	7200	6690	1.05	0.67	0	68.0	23.7	22.1	0.30	0.29	0.0	0.0	587.4	378.0	5.6	0.2	F
24		EB I-195 ONR	On Ramp	8961	6480	7200	6718	1.33	0.96	0	54.3	41.7	38.9	0.31	0.24	0.1	0.1	636.4	460.2	8.5	1.9	F
25	EB I-95 ONR	NW62 ST OFR	Basic Segment	8961	6480	7200	6718	1.33	0.96	0	55.6	41.7	38.9	0.12	0.09	0.0	0.0	244.4	176.7	3.2	0.7	F
26		NW 62 ST ONR	Off Ramp	8961	6480	9600	8957	1.00	0.72	0	65.5	26.5	24.7	0.26	0.24	0.0	0.0	636.4	460.2	7.0	0.5	F
27	NW 62 ST OFR	NW62 ONR	Basic Segment	7925	5629	9600	8930	0.89	0.63	413	69.9	16.9	15.7	0.55	0.55	0.0	0.0	1269.8	901.9	12.9	0.0	B
28		NW 62 ST ONR	On Ramp	9096	6617	9600	8994	1.01	0.74	1030	43.9	37.7	35.3	0.27	0.17	0.1	0.4	443.6	322.7	7.3	2.7	F
	NW 62	NW 79	Ramp																			

29	ST ONR	ST OFR	Overlap	9096	6511	9600	8994	1.01	0.72	940	38.1	57.0	53.4	0.28	0.15	0.1	0.1	404.8	289.8	7.6	3.5	F
30		NW 79 ST OFR	Off Ramp	9096	6467	7200	6746	1.35	0.96	1030	53.0	40.6	38.1	0.22	0.17	0.1	0.1	443.6	315.4	5.9	1.4	F
31	NW 79 ST OFR	NW 81 ST ONR	Basic Segment	8205	5638	7200	6732	1.22	0.84	2619	37.8	49.8	46.5	0.79	0.43	0.4	0.4	1017.5	699.1	18.5	8.5	F
32		NW 81 ST ONR	On Ramp	9861	6778	7200	6784	1.45	1.00	0	52.1	45.3	42.7	0.33	0.24	0.1	3.6	700.4	481.4	9.2	2.4	F
33	NW 81 ST ONR	NW 95 ST OFR	Ramp Overlap	9861	6778	7200	6784	1.45	1.00	0	52.1	45.3	42.7	0.08	0.06	0.0	0.0	165.3	113.6	2.2	0.6	F
34		NW 95 ST OFR	Off Ramp	9861	6778	7200	6784	1.45	1.00	0	61.5	39.0	36.7	0.28	0.24	0.0	0.0	700.4	481.4	7.8	0.9	F

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
US-1 Mainline-WB Rcknbckr Cswy ONR	Basic	0.74	66.1	26.9	26.3	0.66	0.62	0,628.8	0,631.7	9.55	0.53
-WB Rcknbckr Cswy ONR	OnRamp	1.30	59.3	33.6	32.8	0.29	0.24	0,431.3	0,281.1	4.74	0.72
WB Rcknbckr Cswy ONR-SW 8 ST OFR	Basic	0.86	22.9	57.5	56.1	0.03	0.01	0,017.8	0,011.6	0.51	0.34
-SW 8 ST OFR	OffRamp	0.86	20.2	61.7	60.2	0.84	0.24	0,431.3	0,265.8	13.14	9.34
SW 8 ST OFR-East SW 8 ST ONR	Basic	0.82	16.1	70.2	68.5	0.69	0.16	0,268.1	0,157.4	9.79	7.54
-East SW 8 ST ONR	OnRamp	0.95	18.9	71.7	69.9	0.90	0.24	0,471.6	0,288.8	15.28	11.15
-W SW 8 ST ONR	OnRamp	1.08	24.6	66.7	65.0	0.69	0.24	0,539.6	0,349.4	14.22	9.23
SW 7 ST-Dwtwn/ SR 970 OFR	Weaving	1.47	65.3	10.9	10.7	0.42	0.39	0,951.1	0,644.2	9.86	0.66
-NW 2 ST OFR	OffRamp	1.11	56.5	32.0	31.1	0.30	0.24	0,554.7	0,375.0	6.63	1.28
NW 2 ST OFR-N Miami Ave ONR	Basic	0.89	67.5	21.7	21.0	0.10	0.10	0,176.4	0,120.4	1.78	0.06
N Miami Ave ONR-EB I-395 OFR	Weaving	1.32	42.9	58.2	56.0	0.67	0.41	0,975.4	0,678.5	15.81	6.12
EB I-395 OFR-WB I-395 OFR	Basic	1.05	29.2	57.2	55.0	0.04	0.02	0,034.2	0,023.5	0.80	0.47
-WB I-395 OFR	OffRamp	1.05	25.8	63.3	60.9	0.66	0.24	0,518.3	0,348.4	13.49	8.51
WB I-395 OFR-SW 3 AVE / 8 ST ONR	Basic	0.85	16.9	77.0	73.7	0.07	0.02	0,027.7	0,018.5	1.09	0.83
SW 3 Ave/ 8 ST ONR-Flyover Ramp OFR	Weaving	1.73	36.6	70.9	68.2	0.59	0.31	0,728.8	0,418.8	11.46	5.47
Flyover Ramp OFR-I-395/ SR 836 ONR	Basic	0.89	67.2	18.4	17.6	0.20	0.19	0,340.3	0,196.4	2.92	0.12
-I-395/ SR836 ONR	OnRamp	1.44	48.4	39.4	37.5	0.35	0.24	0,702.6	0,400.6	8.28	2.55
I-395/ SR 836 ONR-SR 112 OFR	Basic	1.44	63.1	31.3	29.8	0.06	0.06	0,168.1	0,095.9	1.52	0.15
-SR 112 OFR	OffRamp	1.44	59.6	33.1	31.6	0.29	0.24	0,702.6	0,400.6	6.72	1.00
- Managed Lanes OFR	OffRamp	1.25	57.6	29.6	28.1	0.30	0.24	0,604.3	0,345.2	5.99	1.06
Managed Lanes OFR-NW 29 ST ONR	Basic	0.87	69.4	17.1	15.9	0.36	0.36	0,615.9	0,348.1	5.02	0.04
-NW 29 ST ONR	OnRamp	1.05	57.9	27.3	25.4	0.29	0.24	0,496.7	0,319.6	5.52	0.95
NW 29 ST ONR-I-195 ONR	Basic	1.05	68.0	23.7	22.1	0.30	0.29	0,587.4	0,378.0	5.56	0.16
-EB I-195 ONR	OnRamp	1.33	54.3	41.7	38.9	0.31	0.24	0,636.4	0,460.2	8.48	1.90
EB I-95 ONR-NW62 ST OFR	Basic	1.33	55.6	41.7	38.9	0.12	0.09	0,244.4	0,176.7	3.18	0.66
-NW 62 ST ONR	OffRamp	1.00	65.5	26.5	24.7	0.26	0.24	0,636.4	0,460.2	7.03	0.45

NW 62 ST OFR-NW62 ONR	Basic	0.89	69.9	16.9	15.7	0.55	0.55	1,269.8	0,901.9	12.90	0.02
-NW 62 ST ONR	OnRamp	1.01	43.9	37.7	35.3	0.27	0.17	0,443.6	0,322.7	7.35	2.74
NW 62 ST ONR-NW 79 ST OFR	RampOverlap	1.01	38.1	57.0	53.4	0.28	0.15	0,404.8	0,289.8	7.62	3.48
-NW 79 ST OFR	OffRamp	1.35	53.0	40.6	38.1	0.22	0.17	0,443.6	0,315.4	5.95	1.44
NW 79 ST OFR-NW 81 ST ONR	Basic	1.22	37.8	49.8	46.5	0.79	0.43	1,017.5	0,699.1	18.51	8.52
-NW 81 ST ONR	OnRamp	1.45	52.1	45.3	42.7	0.33	0.24	0,700.4	0,481.4	9.23	2.36
NW 81 ST ONR-NW 95 ST OFR	RampOverlap	1.45	52.1	45.3	42.7	0.08	0.06	0,165.3	0,113.6	2.18	0.56
-NW 95 ST OFR	OffRamp	1.45	61.5	39.0	36.7	0.28	0.24	0,700.4	0,481.4	7.82	0.94
Freeway			45.4	38.5	36.8	12.58	7.94	17,635.4	11,800.0	0,259.9	0,091.4

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Weaving	Off Ramp	Basic	Weaving	Basic	Off Ramp	Basic	Weaving
1	D	D	F	F	F	F	F	B	D	C	F	F	F	F	F

	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Ramp Overlap	Off Ramp
1	C	E	D	D	D	B	C	C	E	E	C	B	E	F	E

	Density-Based LOS by Segment			
Segment	31	32	33	34
Time Step	Basic	On Ramp	Ramp Overlap	Off Ramp
1	F	E	F	E

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	·	F	·	·	·	·	F	F	F	·	F	F	F	·	F

	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	·	F	F	F	F	·	F	F	F	F	F	·	F	F	F

	Demand-Based LOS by Segment			
Time Step	31	32	33	34
1	F	F	F	F

HCS 2010 Freeway Facilities

Project Properties

Analyst		**Freeway Name**	AC	**Analysis Period**	PM Peak
Analysis Date	7/11/2019 8:50:56 AM	**From**	0.000	**Version Date**	5/15/15
Agency	FR Aleman	**To**	8.013		
Location	Miami-Dade County	**Analysis Direction**	Northbound		
User Notes	Southern Section of I95 NB Corridor- (MM 0.000 to 8.013) From START of Project on US-1 Mainline to NW 95 ST- Build				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.26800**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	US-1 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3834	Level	3079	4.09	0.00	2	70
2		WB Rcknbckr Cswy ONR	On Ramp	1500	Level	5991	5.72	0.00	2	70
3	WB Rcknbckr ONR	SW 8 ST OFR	Basic Segment	62	Level	5991	5.72	0.00	3	70
4		SW 8 ST OFR	Off Ramp	1500	Level	5991	5.72	0.00	3	70
5	SW 8 ST OFR	East SW 8 ST ONR	Basic Segment	982	Level	5402	6.00	0.00	3	70
6		East SW 8 ST ONR	On Ramp	1500	Level	6174	6.11	0.00	3	70
7		W SW 8 ST ONR	On Ramp	1500	Level	6928	6.13	0.00	3	70
8	SW 7 ST ONR	Dwtwn/ SR 970 OFR	Weaving	2387	Level	7477	6.22	0.00	3	70
9		NW 2 ST OFR	Off Ramp	1500	Level	7044	6.26	0.00	3	70
10	NW 2 ST OFR	N Miami Ave ONR	Basic Segment	597	Level	5604	6.79	0.00	3	70
11	N Miami Ave ONR	EB I-395 OFR	Weaving	2519	Level	8445	7.11	0.00	3	70
12	EB I-395 OFR	WB I-395 OFR	Basic Segment	99	Level	7534	6.46	0.00	3	70
13		WB I-395 OFR	Off Ramp	1500	Level	7534	6.46	0.00	3	70
14	WB I-395 OFR	SW 3 Ave/NW 8 ST ONR	Basic Segment	100	Level	6929	6.59	0.00	3	65
15	SW 3 Ave/NW 8 ST ONR	Flyover Ramp OFR	Weaving	1890	Level	9112	5.97	0.00	3	70
16	Flyover Ramp OFR	I-395/ SR 836 ONR	Basic Segment	1172	Level	6964	6.33	0.00	3	70
17		I-395/SR836 ONR	On Ramp	1500	Level	11189	6.69	0.00	3	70
18	I-395/ SR 836 ONR	SR 112 OFR	Basic Segment	359	Level	11189	6.69	0.00	3	70
19		SR 112 OFR	Off Ramp	1500	Level	11189	6.69	0.00	3	70
20		Managed Lanes OFR	Off Ramp	1500	Level	9648	6.61	0.00	3	70
21	Managed Lanes OFR	NW 29 ST ONR	Basic Segment	2228	Level	6239	9.65	0.00	3	70
22		NW 29 ST ONR	On Ramp	1500	Level	7741	8.57	0.00	3	70
23	NW 29 ST ONR	I-195 ONR	Basic Segment	1774	Level	7741	8.57	0.00	3	70
24		EB I-195 ONR	On Ramp	1500	Level	10260	9.48	0.00	3	70
25	EB I-195 ONR	NW 62 ST OFR	Basic Segment	576	Level	10260	9.48	0.00	3	70
26		NW62 ST OFR	Off Ramp	1500	Level	10260	9.48	0.00	4	70
27	NW62 ST OFR	NW62 ST ONR	Basic Segment	3384	Level	8970	9.69	0.00	4	70
28		NW 62 ST ONR	On Ramp	1030	Level	10138	9.15	0.00	4	70
29	NW 62 ST ONR	NW 79 ST OFR	Ramp Overlap	940	Level	10138	9.15	0.00	3	70
30		NW 79 ST OFR	Off Ramp	1030	Level	10138	9.15	0.00	3	70
31	NW 79 ST OFR	NW 81 ST ONR	Basic Segment	2619	Level	9073	9.36	0.00	3	70
32		NW 81 ST	On Ramp	1500	Level	10548	8.74	0.00	3	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	On Ramp	2912	7.45	0.00	2	1500	50
4	Off Ramp	589	3.23	0.00	2	190	50
6	On Ramp	772	6.95	0.00	1	230	50
7	On Ramp	754	6.23	0.00	1	1000	40
9	Off Ramp	1440	4.19	0.00	1	300	50
13	Off Ramp	605	4.96	0.00	1	450	50
17	On Ramp	4225	7.29	0.00	2	360	50
19	Off Ramp	1541	7.17	0.00	1	570	50
20	Off Ramp	3409	1.06	0.00	2	450	50
22	On Ramp	1502	4.06	0.00	1	1200	50
24	On Ramp	2519	12.30	0.00	2	1000	50
26	Off Ramp	1290	8.06	0.00	2	450	50
28	On Ramp	1168	5.05	0.00	1	1030	50
30	Off Ramp	1065	7.42	0.00	2	545	50
32	On Ramp	1475	4.95	0.00	1	1065	50
34	Off Ramp	1172	5.80	0.00	1	210	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
8	0.050	549	7.38	0.00	1	50	433	5.54	0.00	1	50
11	0.050	2841	7.74	0.00	1	50	911	12.50	0.00	1	50
15	0.050	2183	3.99	0.00	1	50	2148	4.80	0.00	1	50

		ONR								
33	NW 81 ST ONR	NW 95 ST OFR	Ramp Overlap	354	Level	10548	8.74	0.00	3	70
34		NW 95 ST OFR	Off Ramp	1500	Level	10548	8.74	0.00	3	70

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
8	OneSide	1568	2	1	1	0
11	OneSide	2519	2	1	1	0
15	OneSide	1890	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	US-1 Mainline	WB Rcknbckr Cswy ONR	Basic Segment	3079	3060	4800	4704	0.65	0.65	0	68.5	22.8	22.3	0.64	0.62	0.0	0.0	558.9	555.5	8.1	0.2	C
2		WB Rcknbckr Cswy ONR	On Ramp	5991	4680	4800	4666	1.28	1.00	0	52.9	44.7	43.5	0.32	0.24	0.1	6.3	425.5	332.4	6.3	1.5	F
3	WB Rcknbckr ONR	SW 8 ST OFR	Basic Segment	5991	4680	7200	7000	0.86	0.67	0	65.2	24.6	23.9	0.01	0.01	0.0	0.0	17.6	13.7	0.2	0.0	C
4		SW 8 ST OFR	Off Ramp	5991	4680	7200	7000	0.86	0.67	0	63.7	25.2	24.5	0.27	0.24	0.0	0.0	425.5	332.4	5.2	0.5	C
5	SW 8 ST OFR	East SW 8 ST ONR	Basic Segment	5402	4200	7200	6990	0.77	0.60	0	69.2	20.9	20.2	0.16	0.16	0.0	0.0	251.2	195.3	2.8	0.0	C
6		East SW 8 ST ONR	On Ramp	6174	4980	7200	6986	0.88	0.71	0	60.8	28.0	27.2	0.28	0.24	0.0	0.0	438.5	353.7	5.8	0.8	C
7		W SW 8 ST ONR	On Ramp	6928	5760	7200	6986	0.99	0.82	0	60.0	32.8	31.9	0.28	0.24	0.0	0.0	492.0	409.1	6.8	1.0	D
8	SW 7 ST ONR	Dwtwn/ SR 970 OFR	Weaving	7477	6300	6694	6492	1.15	0.97	0	54.4	34.9	33.9	0.50	0.39	0.1	0.1	845.1	712.0	13.1	2.9	F
9		NW 2 ST OFR	Off Ramp	7044	5940	7200	6981	1.01	0.85	0	55.0	37.2	36.0	0.31	0.24	0.1	0.1	500.3	421.9	7.7	1.6	F
10	NW 2 ST OFR	N Miami Ave ONR	Basic Segment	5604	4679	7200	6963	0.80	0.67	412	41.0	38.0	36.8	0.17	0.10	0.1	0.1	158.4	132.3	3.2	1.3	E
11	N Miami Ave ONR	EB I-395 OFR	Weaving	8445	5467	5795	5596	1.51	0.98	-1093	35.7	84.8	81.9	0.80	0.41	0.4	15.7	1007.2	652.1	18.3	9.0	F
12	EB I-395 OFR	WB I-395 OFR	Basic Segment	7534	4857	7200	6975	1.08	0.70	99	35.1	46.2	44.7	0.03	0.02	0.0	0.0	35.3	22.8	0.6	0.3	F
13		WB I-395 OFR	Off Ramp	7534	4752	7200	6975	1.08	0.68	1500	26.1	60.6	58.7	0.65	0.24	0.4	0.4	535.1	337.5	12.9	8.1	F
14	WB I-395 OFR	SW 3 Ave/NW 8 ST ONR	Basic Segment	6929	4320	7050	6825	1.02	0.63	100	20.1	71.5	69.3	0.06	0.02	0.0	0.0	32.8	20.5	1.0	0.7	F
15	SW 3 Ave/NW 8 ST ONR	Flyover Ramp OFR	Weaving	9112	5220	5359	5204	1.75	1.00	0	34.7	80.1	77.8	0.62	0.31	0.3	11.7	815.4	467.1	13.4	6.8	F
16	Flyover Ramp OFR	I-395/ SR 836 ONR	Basic Segment	6964	3960	7200	6979	1.00	0.57	0	67.0	20.3	19.7	0.20	0.19	0.0	0.0	386.4	219.8	3.3	0.1	C
17		I-395/SR836 ONR	On Ramp	11189	6060	7200	6967	1.61	0.87	0	40.7	50.1	48.5	0.42	0.24	0.2	7.8	794.7	430.4	10.6	4.4	F
18	I-395/ SR 836 ONR	SR 112 OFR	Basic Segment	11189	6060	7200	6967	1.61	0.87	0	60.9	34.3	33.2	0.07	0.06	0.0	0.0	190.2	103.0	1.7	0.2	F
19		SR 112 OFR	Off Ramp	11189	6060	7200	6967	1.61	0.87	0	58.5	35.7	34.5	0.29	0.24	0.0	0.0	794.7	430.4	7.4	1.2	F
20		Managed Lanes OFR	Off Ramp	9648	5220	7200	6969	1.38	0.75	0	54.8	32.8	31.7	0.31	0.24	0.1	0.1	685.2	370.7	6.8	1.5	F
21	Managed Lanes OFR	NW 29 ST ONR	Basic Segment	6239	3360	7200	6869	0.91	0.49	0	69.3	17.0	16.2	0.37	0.36	0.0	0.0	658.2	354.5	5.1	0.1	B
22		NW 29 ST ONR	On Ramp	7741	4920	7200	6904	1.12	0.71	0	50.7	33.3	31.9	0.34	0.24	0.1	0.1	549.8	349.4	6.9	1.9	F
23	NW 29 ST ONR	I-195 ONR	Basic Segment	7741	4920	7200	6904	1.12	0.71	0	67.0	25.5	24.5	0.30	0.29	0.0	0.0	650.2	413.3	6.2	0.3	F
24		EB I-195 ONR	On Ramp	10260	6900	7200	6874	1.49	1.00	0	48.1	49.2	47.0	0.35	0.24	0.1	2.1	728.7	490.1	10.2	3.2	F
25	EB I-195 ONR	NW 62 ST OFR	Basic Segment	10260	6900	7200	6874	1.49	1.00	0	53.0	45.4	43.4	0.12	0.09	0.0	0.0	279.8	188.2	3.5	0.9	F
26		NW62 ST OFR	Off Ramp	10260	6900	9600	9165	1.12	0.75	0	65.0	27.8	26.6	0.26	0.24	0.0	0.0	728.7	490.1	7.5	0.5	F
27	NW62 ST OFR	NW62 ST ONR	Basic Segment	8970	5816	9600	9157	0.98	0.64	1087	69.9	20.7	19.7	0.55	0.55	0.0	0.0	1437.2	931.9	13.3	0.0	C
28		NW 62 ST ONR	On Ramp	10138	6774	9600	9180	1.10	0.74	1030	35.2	48.1	46.0	0.33	0.17	0.2	0.8	494.4	330.4	9.4	4.7	F
29	NW 62 ST ONR	NW 79 ST OFR	Ramp Overlap	10138	6697	9600	9180	1.10	0.73	940	36.0	62.0	59.3	0.30	0.15	0.1	0.1	451.2	298.1	8.3	4.0	F
30		NW 79 ST OFR	Off Ramp	10138	6653	7200	6885	1.47	0.97	1030	54.5	40.7	38.9	0.21	0.17	0.0	0.0	494.4	324.5	6.0	1.3	F
31	NW 79 ST OFR	NW 81 ST ONR	Basic Segment	9073	5758	7200	6878	1.32	0.84	2619	38.5	49.8	47.6	0.77	0.43	0.3	0.3	1125.1	714.0	18.5	8.3	F
32		NW 81 ST ONR	On Ramp	10548	6898	7200	6899	1.53	1.00	0	52.8	45.1	43.2	0.32	0.24	0.1	2.2	749.1	489.9	9.3	2.3	F
33	NW 81 ST ONR	NW 95 ST OFR	Ramp Overlap	10548	6898	7200	6899	1.53	1.00	0	52.8	45.1	43.2	0.08	0.06	0.0	0.0	176.8	115.6	2.2	0.5	F

34	NW 95 ST OFR	Off Ramp	10548	6898	7200	6899	1.53	1.00	0	61.2	39.2	37.6	0.28	0.24	0.0	0.0	749.1	489.9	8.0	1.0	F

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
US-1 Mainline-WB Rcknbckr Cswy ONR	Basic	0.65	68.5	22.8	22.3	0.64	0.62	0,558.9	0,555.5	8.11	0.18
-WB Rcknbckr Cswy ONR	OnRamp	1.28	52.9	44.7	43.5	0.32	0.24	0,425.5	0,332.4	6.29	1.54
WB Rcknbckr ONR-SW 8 ST OFR	Basic	0.86	65.2	24.6	23.9	0.01	0.01	0,017.6	0,013.7	0.21	0.01
-SW 8 ST OFR	OffRamp	0.86	63.7	25.2	24.5	0.27	0.24	0,425.5	0,332.4	5.22	0.47
SW 8 ST OFR-East SW 8 ST ONR	Basic	0.77	69.2	20.9	20.2	0.16	0.16	0,251.2	0,195.3	2.82	0.03
-East SW 8 ST ONR	OnRamp	0.88	60.8	28.0	27.2	0.28	0.24	0,438.5	0,353.7	5.81	0.76
-W SW 8 ST ONR	OnRamp	0.99	60.0	32.8	31.9	0.28	0.24	0,492.0	0,409.1	6.82	0.97
SW 7 ST ONR-Dwtwn/ SR 970 OFR	Weaving	1.15	54.4	34.9	33.9	0.50	0.39	0,845.1	0,712.0	13.09	2.91
-NW 2 ST OFR	OffRamp	1.01	55.0	37.2	36.0	0.31	0.24	0,500.3	0,421.9	7.68	1.65
NW 2 ST OFR-N Miami Ave ONR	Basic	0.80	41.0	38.0	36.8	0.17	0.10	0,158.4	0,132.3	3.22	1.33
N Miami Ave ONR-EB I-395 OFR	Weaving	1.51	35.7	84.8	81.9	0.80	0.41	1,007.2	0,652.1	18.28	8.96
EB I-395 OFR-WB I-395 OFR	Basic	1.08	35.1	46.2	44.7	0.03	0.02	0,035.3	0,022.8	0.65	0.32
-WB I-395 OFR	OffRamp	1.08	26.1	60.6	58.7	0.65	0.24	0,535.1	0,337.5	12.92	8.10
WB I-395 OFR-SW 3 Ave/NW 8 ST ONR	Basic	1.02	20.1	71.5	69.3	0.06	0.02	0,032.8	0,020.5	1.02	0.70
SW 3 Ave/NW 8 ST ONR-Flyover Ramp OFR	Weaving	1.75	34.7	80.1	77.8	0.62	0.31	0,815.4	0,467.1	13.44	6.77
Flyover Ramp OFR-I-395/ SR 836 ONR	Basic	1.00	67.0	20.3	19.7	0.20	0.19	0,386.4	0,219.8	3.28	0.14
-I-395/SR836 ONR	OnRamp	1.61	40.7	50.1	48.5	0.42	0.24	0,794.7	0,430.4	10.57	4.42
I-395/ SR 836 ONR-SR 112 OFR	Basic	1.61	60.9	34.3	33.2	0.07	0.06	0,190.2	0,103.0	1.69	0.22
-SR 112 OFR	OffRamp	1.61	58.5	35.7	34.5	0.29	0.24	0,794.7	0,430.4	7.35	1.20
-Managed Lanes OFR	OffRamp	1.38	54.8	32.8	31.7	0.31	0.24	0,685.2	0,370.7	6.76	1.47
Managed Lanes OFR-NW 29 ST ONR	Basic	0.91	69.3	17.0	16.2	0.37	0.36	0,658.2	0,354.5	5.12	0.05
-NW 29 ST ONR	OnRamp	1.12	50.7	33.3	31.9	0.34	0.24	0,549.8	0,349.4	6.89	1.90
NW 29 ST ONR-I-195 ONR	Basic	1.12	67.0	25.5	24.5	0.30	0.29	0,650.2	0,413.3	6.17	0.27
-EB I-195 ONR	OnRamp	1.49	48.1	49.2	47.0	0.35	0.24	0,728.7	0,490.1	10.19	3.19
EB I-195 ONR-NW 62 ST OFR	Basic	1.49	53.0	45.4	43.4	0.12	0.09	0,279.8	0,188.2	3.55	0.86
-NW62 ST OFR	OffRamp	1.12	65.0	27.8	26.6	0.26	0.24	0,728.7	0,490.1	7.54	0.54
NW62 ST OFR-NW62 ST ONR	Basic	0.98	69.9	20.7	19.7	0.55	0.55	1,437.2	0,931.9	13.33	0.02
-NW 62 ST ONR	OnRamp	1.10	35.2	48.1	46.0	0.33	0.17	0,494.4	0,330.4	9.39	4.67
NW 62 ST ONR-NW 79 ST OFR	RampOverlap	1.10	36.0	62.0	59.3	0.30	0.15	0,451.2	0,298.1	8.28	4.02
-NW 79 ST OFR	OffRamp	1.47	54.5	40.7	38.9	0.21	0.17	0,494.4	0,324.5	5.95	1.32
NW 79 ST OFR-NW 81 ST ONR	Basic	1.32	38.5	49.8	47.6	0.77	0.43	1,125.1	0,714.0	18.52	8.32
-NW 81 ST ONR	OnRamp	1.53	52.8	45.1	43.2	0.32	0.24	0,749.1	0,489.9	9.29	2.29
NW 81 ST ONR-NW 95 ST OFR	RampOverlap	1.53	52.8	45.1	43.2	0.08	0.06	0,176.8	0,115.6	2.19	0.54

-NW 95 ST OFR	OffRamp	1.53	61.2	39.2	37.6	0.28	0.24	0,749.1	0,489.9	8.01	1.01
Freeway			50.0	39.0	37.6	10.97	7.95	18,662.9	12,492.1	0,249.6	0,071.2

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	On Ramp	Weaving	Off Ramp	Basic	Weaving	Basic	Off Ramp	Basic	Weaving
1	C	E	C	C	C	C	D	D	E	E	F	F	F	F	F
	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Ramp Overlap	Off Ramp
1	C	E	D	E	D	B	D	C	E	F	C	C	F	F	E
	Density-Based LOS by Segment														
Segment	31	32	33	34											
Time Step	Basic	On Ramp	Ramp Overlap	Off Ramp											
1	F	E	F	E											
	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	·	F	·	·	·	·	·	F	F	·	F	F	F	F	F
	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	·	F	F	F	F	·	F	F	F	F	F	·	F	F	F
	Demand-Based LOS by Segment														
Time Step	31	32	33	34											
1	F	F	F	F											

HCS 2010 Freeway Facilities

Project Properties

Analyst	AC	**Freeway Name**	I-95 Northbound	**Analysis Period**	AM Peak
Analysis Date	7/10/2019 4:08:04 PM	**From**	8.063	**Version Date**	5/15/15
Agency	F.R. Aleman	**To**	17.328		
Location	MIami-Dade County	**Analysis Direction**	Northbound		
User Notes	Northern Corridor Section of I-95 NB Corridor (MP 8.063 to MM 17.260) From NW 95 ST to Broward County Line.				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.28500**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW95 ST OFR	NW 119 Street OFR	Basic Segment	2556	Level	8899	12.28	0.00	4	70
2		NW119 Street OFR	Off Ramp	1500	Level	8899	12.28	0.00	4	70
3	NW119 Street OFR	NW 103 Street ONR	Basic Segment	5618	Level	7478	13.81	0.00	4	70
4		NW 103 Street ONR	On Ramp	1500	Level	8226	13.65	0.00	4	70
5	NW 119 ST ONR	NW135 Street OFR	Weaving	3495	Level	8669	13.10	0.00	4	70
6	NW 135 ST OFR	Opalocka Blvd ONR	Basic Segment	2022	Level	7264	14.46	0.00	4	70
7	Opalocka Blvd ONR	NW 6 Ave_NW 151 OFR	Weaving	3564	Level	9133	12.38	0.00	4	70
8	NW 6 AVE_151 ST OFR	NB FL TRNPKE OFR	Basic Segment	1119	Level	8902	12.05	0.00	4	70
9		NB FL TRNPKE OFR	Off Ramp	1500	Level	8902	12.05	0.00	4	70
10		NW 167 ST OFR	Off Ramp	1500	Level	6787	14.38	0.00	3	70
11	NW 167 ST OFR	SR 826 ONR	Basic Segment	2550	Level	4904	18.43	0.00	3	70
12		SR 826 ONR	On Ramp	1500	Level	6998	14.08	0.00	3	70
13		NW 2 AVE ONR	On Ramp	1500	Level	7513	13.38	0.00	3	70
14	NW 2 AVE ONR	SR 860/MIA GARD OFR	Basic Segment	2761	Level	7513	13.38	0.00	3	70
15		SR 860/MIA GARD OFR	Off Ramp	1500	Level	7513	13.38	0.00	3	70
16	SR 860/MIA GARD OFR	SR 860 ONR	Basic Segment	1199	Level	6781	14.17	0.00	3	70
17		SR 860 ONR	On Ramp	1500	Level	7642	12.77	0.00	3	70
18	SR 860 ONR	EXP LANES EGRESS	Basic Segment	1246	Level	7642	12.77	0.00	4	70
19		EXP LANES EGRESS	On Ramp	1500	Level	7666	12.75	0.00	4	70
20	EXP LANES OFR	IVES DAIRY RD OFR	Basic Segment	1521	Level	7666	12.75	0.00	4	70
21		IVES DAIRY RD OFR	Off Ramp	1500	Level	7666	12.75	0.00	4	70
22	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	4419	Level	6062	14.81	0.00	4	70
23		IVES DAIRY RD ONR	On Ramp	1500	Level	8597	11.07	0.00	4	70
24	IVES DAIRY RD ONR	BROWARD COUNTY LINE	Basic Segment	454	Level	8597	11.07	0.00	5	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	1421	4.25	0.00	2	580	50
4	On Ramp	748	12.10	0.00	1	700	50
9	Off Ramp	2115	4.58	0.00	2	450	50
10	Off Ramp	1883	3.82	0.00	2	500	50
12	On Ramp	2094	3.88	0.00	2	730	50
13	On Ramp	515	3.88	0.00	1	815	50
15	Off Ramp	732	6.01	0.00	1	0	50
17	On Ramp	861	1.74	0.00	1	350	50
19	On Ramp	24	4.17	0.00	1	820	50
21	Off Ramp	1604	4.93	0.00	2	500	50
23	On Ramp	2535	2.13	0.00	2	900	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
5	0.050	443	2.78	0.00	1	50	1405	6.06	0.00	1	50
7	0.050	1869	4.31	0.00	1	40	231	25.10	0.00	1	40

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
5	OneSide	3495	2	1	1	0
7	OneSide	3564	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length(ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	NW95 ST OFR	NW 119 Street OFR	Basic Segment	8899	8880	9600	9045	0.98	0.98	0	54.5	43.2	40.7	0.53	0.41	0.1	0.1	1077.0	1074.7	19.7	4.4	E
2		NW119 Street OFR	Off Ramp	8899	8880	9600	9045	0.98	0.98	0	63.4	37.2	35.0	0.27	0.24	0.0	0.0	632.0	630.7	9.9	0.9	E
3	NW119 Street OFR	NW 103 Street ONR	Basic Segment	7478	7500	9600	8980	0.83	0.84	0	62.5	32.1	30.0	1.02	0.91	0.1	0.1	1989.2	1995.0	31.9	3.4	D
4		NW 103 Street ONR	On Ramp	8226	8220	9600	8987	0.92	0.91	0	60.6	36.0	33.7	0.28	0.24	0.0	0.0	584.2	583.8	9.6	1.3	E
5	NW 119 ST ONR	NW135 Street OFR	Weaving	8669	8640	9281	8711	1.00	0.99	0	48.5	43.2	40.6	0.82	0.57	0.3	0.3	1434.6	1429.8	29.5	9.1	F
6	NW 135 ST OFR	Opalocka Blvd ONR	Basic Segment	7264	7260	9600	8953	0.81	0.81	0	63.5	30.6	28.6	0.36	0.33	0.0	0.0	695.4	695.1	10.9	1.0	D
7	Opalocka Blvd ONR	NW 6 Ave_NW 151 OFR	Weaving	9133	8760	9291	8749	1.04	1.00	0	45.9	53.6	50.5	0.88	0.58	0.3	2.2	1541.2	1478.3	32.2	11.1	F
8	NW 6 AVE_151 ST OFR	NB FL TRNPKE OFR	Basic Segment	8902	8520	9600	9054	0.98	0.94	0	57.0	39.6	37.4	0.22	0.18	0.0	0.0	471.7	451.4	7.9	1.5	E
9		NB FL TRNPKE OFR	Off Ramp	8902	8520	9600	9054	0.98	0.94	0	62.5	36.1	34.1	0.27	0.24	0.0	0.0	632.2	605.1	9.7	1.0	E
10		NW 167 ST OFR	Off Ramp	6787	6480	7200	6717	1.01	0.96	0	60.0	38.6	36.0	0.28	0.24	0.0	0.0	482.0	460.2	7.7	1.1	F
11	NW 167 ST OFR	SR 826 ONR	Basic Segment	4904	4661	7200	6592	0.74	0.71	286	64.1	24.2	22.2	0.45	0.41	0.0	0.0	592.1	562.8	8.8	0.7	C
12		SR 826 ONR	On Ramp	6998	6160	7200	6727	1.04	0.92	721	42.6	48.2	45.0	0.40	0.24	0.2	3.1	497.0	437.5	10.3	4.0	F
13		NW 2 AVE ONR	On Ramp	7513	6650	7200	6749	1.11	0.99	0	56.6	41.6	39.0	0.30	0.24	0.1	0.1	533.6	472.3	8.4	1.6	F
14	NW 2 AVE ONR	SR 860/MIA GARD OFR	Basic Segment	7513	6630	7200	6749	1.11	0.98	2242	50.2	44.0	41.2	0.62	0.45	0.2	0.2	982.2	866.7	17.2	4.9	F
15		SR 860/MIA GARD OFR	Off Ramp	7513	6596	7200	6749	1.11	0.98	1500	51.0	43.1	40.4	0.33	0.24	0.1	0.1	533.6	468.5	9.2	2.5	F
16	SR 860/MIA GARD OFR	SR 860 ONR	Basic Segment	6781	5880	7200	6724	1.01	0.87	1199	38.5	51.0	47.6	0.35	0.19	0.2	0.2	385.0	333.8	8.7	3.9	F
17		SR 860 ONR	On Ramp	7642	6780	7200	6768	1.13	1.00	0	54.8	43.5	40.9	0.31	0.24	0.1	0.1	542.8	481.5	8.8	1.9	F
18	SR 860 ONR	EXP LANES EGRESS	Basic Segment	7642	6780	9600	9024	0.85	0.75	0	65.8	27.4	25.8	0.22	0.20	0.0	0.0	450.8	400.0	6.1	0.4	D
19		EXP LANES EGRESS	On Ramp	7666	6780	9600	9025	0.85	0.75	0	61.5	29.3	27.6	0.28	0.24	0.0	0.0	544.5	481.5	7.8	1.0	D
20	EXP LANES OFR	IVES DAIRY RD OFR	Basic Segment	7666	6780	9600	9025	0.85	0.75	0	65.8	27.4	25.8	0.26	0.25	0.0	0.0	552.1	488.3	7.4	0.4	D
21		IVES DAIRY RD OFR	Off Ramp	7666	6780	9600	9025	0.85	0.75	0	64.3	28.1	26.4	0.27	0.24	0.0	0.0	544.5	481.5	7.5	0.6	D
22	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	6062	5400	9600	8938	0.68	0.60	0	69.3	20.9	19.5	0.72	0.72	0.0	0.0	1268.4	1129.9	16.3	0.2	C
23		IVES DAIRY RD ONR	On Ramp	8597	7500	9600	9096	0.95	0.82	0	57.0	34.1	32.3	0.30	0.24	0.1	1.6	610.6	532.7	9.3	1.7	D
24	IVES DAIRY RD ONR	BROWARD COUNTY LINE	Basic Segment	8597	7500	12000	11370	0.76	0.66	0	67.3	23.5	22.3	0.08	0.07	0.0	0.0	184.8	161.2	2.4	0.1	C

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW95 ST OFR-NW 119 Street OFR	Basic	0.98	54.5	43.2	40.7	0.53	0.41	1,077.0	1,074.7	19.72	4.37
-NW119 Street OFR	OffRamp	0.98	63.4	37.2	35.0	0.27	0.24	0,632.0	0,630.7	9.94	0.93
NW119 Street OFR-NW 103 Street ONR	Basic	0.83	62.5	32.1	30.0	1.02	0.91	1,989.2	1,995.0	31.92	3.42
-NW 103 Street ONR	OnRamp	0.92	60.6	36.0	33.7	0.28	0.24	0,584.2	0,583.8	9.63	1.29
NW 119 ST ONR-NW135 Street OFR	Weaving	1.00	48.5	43.2	40.6	0.82	0.57	1,434.6	1,429.8	29.48	9.06
NW 135 ST OFR-Opalocka Blvd ONR	Basic	0.81	63.5	30.6	28.6	0.36	0.33	0,695.4	0,695.1	10.94	1.01
Opalocka Blvd ONR-NW 6 Ave_NW 151 OFR	Weaving	1.04	45.9	53.6	50.5	0.88	0.58	1,541.2	1,478.3	32.19	11.07
NW 6 AVE_151 ST OFR - NB FL TRNPKE OFR	Basic	0.98	57.0	39.6	37.4	0.22	0.18	0,471.7	0,451.4	7.92	1.47
-NB FL TRNPKE OFR	OffRamp	0.98	62.5	36.1	34.1	0.27	0.24	0,632.2	0,605.1	9.68	1.03
-NW 167											

ST OFR	OffRamp	1.01	60.0	38.6	36.0	0.28	0.24	0,482.0	0,460.2	7.66	1.09
NW 167 ST OFR-SR 826 ONR	Basic	0.74	64.1	24.2	22.2	0.45	0.41	0,592.1	0,562.8	8.78	0.74
-SR 826 ONR	OnRamp	1.04	42.6	48.2	45.0	0.40	0.24	0,497.0	0,437.5	10.27	4.02
-NW 2 AVE ONR	OnRamp	1.11	56.6	41.6	39.0	0.30	0.24	0,533.6	0,472.3	8.35	1.60
NW 2 AVE ONR-SR 860/MIA GARD OFR	Basic	1.11	50.2	44.0	41.2	0.62	0.45	0,982.2	0,866.7	17.25	4.87
-SR 860/MIA GARD OFR	OffRamp	1.11	51.0	43.1	40.4	0.33	0.24	0,533.6	0,468.5	9.19	2.50
SR 860/MIA GARD OFR-SR 860 ONR	Basic	1.01	38.5	51.0	47.6	0.35	0.19	0,385.0	0,333.8	8.68	3.91
-SR 860 ONR	OnRamp	1.13	54.8	43.5	40.9	0.31	0.24	0,542.8	0,481.5	8.79	1.91
SR 860 ONR-EXP LANES EGRESS	Basic	0.85	65.8	27.4	25.8	0.22	0.20	0,450.8	0,400.0	6.08	0.37
-EXP LANES EGRESS	OnRamp	0.85	61.5	29.3	27.6	0.28	0.24	0,544.5	0,481.5	7.84	0.96
EXP LANES OFR-IVES DAIRY RD OFR	Basic	0.85	65.8	27.4	25.8	0.26	0.25	0,552.1	0,488.3	7.42	0.45
-IVES DAIRY RD OFR	OffRamp	0.85	64.3	28.1	26.4	0.27	0.24	0,544.5	0,481.5	7.49	0.61
IVES DAIRY RD OFR-IVES DAIRY RD ONR	Basic	0.68	69.3	20.9	19.5	0.72	0.72	1,268.4	1,129.9	16.31	0.17
-IVES DAIRY RD ONR	OnRamp	0.95	57.0	34.1	32.3	0.30	0.24	0,610.6	0,532.7	9.34	1.73
IVES DAIRY RD ONR-BROWARD COUNTY LINE	Basic	0.76	67.3	23.5	22.3	0.08	0.07	0,184.8	0,161.2	2.39	0.09
Freeway			56.2	36.1	33.8	9.85	7.96	17,761.4	16,702.2	0,297.3	0,058.7

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Weaving	Basic	Weaving	Basic	Off Ramp	Off Ramp	Basic	On Ramp	On Ramp	Basic	Off Ramp
1	E	E	D	E	F	D	F	E	E	E	C	F	E	E	E

	Density-Based LOS by Segment								
Segment	16	17	18	19	20	21	22	23	24
Time Step	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Basic
1	F	E	D	D	D	D	C	D	C

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	.	F	.	.	F	.	F	F	F	F

	Demand-Based LOS by Segment								
Time Step	16	17	18	19	20	21	22	23	24
1	F	F	.	.	.	.	.	.	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	AC	**Freeway Name**	I-95 Northbound	**Analysis Period**	PM Peak
Analysis Date	7/10/2019 4:08:04 PM	**From**	8.063	**Version Date**	5/15/15
Agency	F.R. Aleman	**To**	17.328		
Location	MIami-Dade County	**Analysis Direction**	Northbound		

User Notes	Northern Corridor Section of I-95 NB Corridor (MP 8.063 to MM 17.260) From NW 95 ST to Broward County Line.
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.28500**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW95 ST OFR	NW 119 ST ONR	Basic Segment	2556	Level	9373	8.74	0.00	4	70
2		NW119 Street OFR	Off Ramp	1500	Level	9373	8.74	0.00	4	70
3	NW119 Street OFR	NW 103 Street ONR	Basic Segment	5618	Level	8092	9.00	0.00	4	70
4		NW 103 Street ONR	On Ramp	1500	Level	8837	9.07	0.00	4	70
5	NW 119 ST ONR	NW135 Street OFR	Weaving	3495	Level	9304	8.76	0.00	4	70
6	NW 135 ST OFR	Opalocka Blvd ONR	Basic Segment	2022	Level	8060	9.17	0.00	4	70
7	Opalocka Blvd ONR	NW 6 Ave/NW 151 OFR	Weaving	3564	Level	9813	8.15	0.00	4	70
8	NW 6 AVE_151 ST OFR	NB FL TRNPKE OFR	Basic Segment	1119	Level	9523	7.92	0.00	4	70
9		NB FL TRNPKE OFR	Off Ramp	1500	Level	9523	7.92	0.00	4	70
10		NW 167 ST OFR	Off Ramp	1500	Level	7600	9.16	0.00	3	70
11	NW 167 ST OFR	SR 826 ONR	Basic Segment	2550	Level	5814	11.29	0.00	3	70
12		SR 826 ONR	On Ramp	1500	Level	8274	9.00	0.00	3	70
13		NW 2 AVE ONR	On Ramp	1500	Level	8773	8.64	0.00	3	70
14	NW 2 AVE ONR	SR 860/MIA GARD OFR	Basic Segment	2761	Level	8773	8.64	0.00	3	70
15		SR 860/MIA GARD OFR	Off Ramp	1500	Level	8773	8.64	0.00	3	70
16	SR 860/MIA GARD OFR	SR 860 ONR	Basic Segment	1199	Level	7821	9.12	0.00	3	70
17		SR 860 ONR	On Ramp	1500	Level	8925	8.35	0.00	3	70
18	SR 860 ONR	EXP LANES Egress	Basic Segment	1245	Level	8925	8.35	0.00	4	70
19		EXP LANES Egress	On Ramp	1500	Level	8967	8.33	0.00	4	70
20	EXP LANES OFR	IVES DAIRY RD OFR	Basic Segment	1521	Level	8967	8.33	0.00	4	70
21		IVES DAIRY RD OFR	Off Ramp	1500	Level	8967	8.33	0.00	4	70
22	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	4419	Level	6963	9.79	0.00	4	70
23		IVES DAIRY RD ONR	On Ramp	1500	Level	9177	7.79	0.00	4	70
24	IVES DAIRY RD ONR	BROWARD COUNTY LINE	Basic Segment	454	Level	9177	7.79	0.00	5	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	1281	7.07	0.00	2	580	50
4	On Ramp	745	9.77	0.00	1	700	50
9	Off Ramp	1923	3.03	0.00	2	450	50
10	Off Ramp	1786	2.25	0.00	2	500	50
12	On Ramp	2460	3.61	0.00	2	730	50
13	On Ramp	499	2.63	0.00	1	815	50
15	Off Ramp	952	4.73	0.00	1	1045	50
17	On Ramp	1104	2.95	0.00	1	350	50
19	On Ramp	42	2.38	0.00	1	820	50
21	Off Ramp	2004	3.24	0.00	2	500	50
23	On Ramp	2214	1.49	0.00	2	900	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
5	0.050	467	2.88	0.00	1	50	1244	6.11	0.00	1	50
7	0.050	1753	3.48	0.00	1	40	290	15.60	0.00	1	40

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
5	OneSide	3495	2	1	1	0

7	OneSide	3564	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	NW95 ST OFR	NW 119 ST ONR	Basic Segment	9373	9105	9600	9198	1.02	0.99	0	50.2	45.4	43.5	0.58	0.41	0.2	0.2	1134.3	1101.9	22.0	6.2	F
2		NW119 Street OFR	Off Ramp	9373	9107	9600	9198	1.02	0.99	0	60.4	37.7	36.1	0.28	0.24	0.0	0.0	665.7	646.8	10.7	1.5	F
3	NW119 Street OFR	NW 103 Street ONR	Basic Segment	8092	7507	9600	9186	0.88	0.82	4843	48.5	38.7	37.0	1.32	0.91	0.4	0.4	2152.5	1996.9	41.1	12.6	E
4		NW 103 Street ONR	On Ramp	8837	8222	9600	9184	0.96	0.90	1500	41.0	50.1	47.9	0.42	0.24	0.2	0.2	627.6	583.9	14.2	5.9	F
5	NW 119 ST ONR	NW135 Street OFR	Weaving	9304	8648	9357	8964	1.04	0.96	0	45.4	47.6	45.6	0.87	0.57	0.3	0.3	1539.7	1431.1	31.5	11.1	F
6	NW 135 ST OFR	Opalocka Blvd ONR	Basic Segment	8060	6265	9600	9179	0.88	0.68	2022	16.4	95.3	91.2	1.40	0.33	1.1	1.1	771.7	599.8	36.5	27.9	F
7	Opalocka Blvd ONR	NW 6 Ave/NW 151 OFR	Weaving	9813	7229	9341	8975	1.09	0.81	3564	30.8	58.7	56.4	1.31	0.58	0.7	6.0	1655.9	1219.9	39.6	22.2	F
8	NW 6 AVE_151 ST OFR	NB FL TRNPKE OFR	Basic Segment	9523	6916	9600	9234	1.03	0.75	634	30.2	57.2	55.0	0.42	0.18	0.2	0.2	504.6	366.4	12.1	6.9	F
9		NB FL TRNPKE OFR	Off Ramp	9523	6724	9600	9234	1.03	0.73	1472	26.8	62.6	60.2	0.63	0.24	0.4	0.4	676.3	477.6	17.8	11.0	F
10		NW 167 ST OFR	Off Ramp	7600	5245	7200	6885	1.10	0.76	-18767	30.3	57.8	55.2	0.56	0.24	0.3	0.3	539.8	372.5	12.3	7.0	F
11	NW 167 ST OFR	SR 826 ONR	Basic Segment	5814	3616	7200	6815	0.85	0.53	2550	14.6	82.4	78.0	1.98	0.41	1.6	1.6	702.0	436.6	29.9	23.6	F
12		SR 826 ONR	On Ramp	8274	4693	7200	6890	1.20	0.68	0	59.9	26.6	25.5	0.28	0.24	0.0	9.6	587.6	333.3	5.6	0.8	F
13		NW 2 AVE ONR	On Ramp	8773	5174	7200	6902	1.27	0.75	0	61.5	29.1	27.9	0.28	0.24	0.0	0.0	623.1	367.5	6.0	0.7	F
14	NW 2 AVE ONR	SR 860/MIA GARD OFR	Basic Segment	8773	5174	7200	6902	1.27	0.75	0	65.8	27.3	26.2	0.48	0.45	0.0	0.0	1146.9	676.4	10.3	0.6	F
15		SR 860/MIA GARD OFR	Off Ramp	8773	5174	7200	6902	1.27	0.75	0	61.7	29.1	27.9	0.28	0.24	0.0	0.0	623.1	367.5	6.0	0.7	F
16	SR 860/MIA GARD OFR	SR 860 ONR	Basic Segment	7821	4634	7200	6886	1.14	0.67	0	46.6	33.1	31.7	0.29	0.19	0.1	0.1	444.0	263.1	5.6	1.9	F
17		SR 860 ONR	On Ramp	8925	5714	7200	6911	1.29	0.83	0	58.9	33.4	32.1	0.29	0.24	0.0	0.0	633.9	405.8	6.9	1.1	F
18	SR 860 ONR	EXP LANES Egress	Basic Segment	8925	5714	9600	9215	0.97	0.62	0	68.8	21.6	20.8	0.21	0.20	0.0	0.0	526.1	336.8	4.9	0.1	C
19		EXP LANES Egress	On Ramp	8967	5774	9600	9216	0.97	0.63	0	64.0	23.5	22.6	0.27	0.24	0.0	0.0	636.9	410.1	6.4	0.6	C
20	EXP LANES OFR	IVES DAIRY RD OFR	Basic Segment	8967	5774	9600	9216	0.97	0.63	0	68.9	21.8	20.9	0.25	0.25	0.0	0.0	645.8	415.8	6.0	0.1	C
21		IVES DAIRY RD OFR	Off Ramp	8967	5774	9600	9216	0.97	0.63	0	63.0	23.9	22.9	0.27	0.24	0.0	0.0	636.9	410.1	6.5	0.6	C
22	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	6963	4495	9600	9152	0.76	0.49	0	69.9	16.9	16.1	0.72	0.72	0.0	0.0	1456.9	940.5	13.4	0.0	B
23		IVES DAIRY RD ONR	On Ramp	9177	6595	9600	9240	0.99	0.71	0	60.8	27.8	26.8	0.28	0.24	0.0	0.4	651.8	468.4	7.7	1.0	C
24	IVES DAIRY RD ONR	BROWARD COUNTY LINE	Basic Segment	9177	6595	12000	11550	0.79	0.57	0	68.1	20.1	19.4	0.08	0.07	0.0	0.0	197.3	141.8	2.1	0.1	C

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW95 ST OFR-NW 119 ST ONR	Basic	1.02	50.2	45.4	43.5	0.58	0.41	1,134.3	1,101.9	21.97	6.23
-NW119 Street OFR	OffRamp	1.02	60.4	37.7	36.1	0.28	0.24	0,665.7	0,646.8	10.72	1.48
NW119 Street OFR-NW 103 Street ONR	Basic	0.88	48.5	38.7	37.0	1.32	0.91	2,152.5	1,996.9	41.14	12.62
-NW 103 Street ONR	OnRamp	0.96	41.0	50.1	47.9	0.42	0.24	0,627.6	0,583.9	14.24	5.90
NW 119 ST ONR-NW135 Street	Weaving	1.04	45.4	47.6	45.6	0.87	0.57	1,539.7	1,431.1	31.52	11.08

OFR											
NW 135 ST OFR-Opalocka Blvd ONR	Basic	0.88	16.4	95.3	91.2	1.40	0.33	0,771.7	0,599.8	36.51	27.94
Opalocka Blvd ONR-NW 6 Ave/NW 151 OFR	Weaving	1.09	30.8	58.7	56.4	1.31	0.58	1,655.9	1,219.9	39.61	22.18
NW 6 AVE_151 ST OFR - NB FL TRNPKE OFR	Basic	1.03	30.2	57.2	55.0	0.42	0.18	0,504.6	0,366.4	12.12	6.89
-NB FL TRNPKE OFR	OffRamp	1.03	26.8	62.6	60.2	0.63	0.24	0,676.3	0,477.6	17.79	10.97
-NW 167 ST OFR	OffRamp	1.10	30.3	57.8	55.2	0.56	0.24	0,539.8	0,372.5	12.31	6.99
NW 167 ST OFR-SR 826 ONR	Basic	0.85	14.6	82.4	78.0	1.98	0.41	0,702.0	0,436.6	29.85	23.62
-SR 826 ONR	OnRamp	1.20	59.9	26.6	25.5	0.28	0.24	0,587.6	0,333.3	5.56	0.80
-NW 2 AVE ONR	OnRamp	1.27	61.5	29.1	27.9	0.28	0.24	0,623.1	0,367.5	5.97	0.72
NW 2 AVE ONR-SR 860/MIA GARD OFR	Basic	1.27	65.8	27.3	26.2	0.48	0.45	1,146.9	0,676.4	10.27	0.61
-SR 860/MIA GARD OFR	OffRamp	1.27	61.7	29.1	27.9	0.28	0.24	0,623.1	0,367.5	5.95	0.70
SR 860/MIA GARD OFR-SR 860 ONR	Basic	1.14	46.6	33.1	31.7	0.29	0.19	0,444.0	0,263.1	5.64	1.89
-SR 860 ONR	OnRamp	1.29	58.9	33.4	32.1	0.29	0.24	0,633.9	0,405.8	6.88	1.09
SR 860 ONR-EXP LANES Egress	Basic	0.97	68.8	21.6	20.8	0.21	0.20	0,526.1	0,336.8	4.90	0.08
-EXP LANES Egress	OnRamp	0.97	64.0	23.5	22.6	0.27	0.24	0,636.9	0,410.1	6.41	0.55
EXP LANES OFR-IVES DAIRY RD OFR	Basic	0.97	68.9	21.8	20.9	0.25	0.25	0,645.8	0,415.8	6.03	0.09
-IVES DAIRY RD OFR	OffRamp	0.97	63.0	23.9	22.9	0.27	0.24	0,636.9	0,410.1	6.51	0.65
IVES DAIRY RD OFR-IVES DAIRY RD ONR	Basic	0.76	69.9	16.9	16.1	0.72	0.72	1,456.9	0,940.5	13.45	0.01
-IVES DAIRY RD ONR	OnRamp	0.99	60.8	27.8	26.8	0.28	0.24	0,651.8	0,468.4	7.70	1.01
IVES DAIRY RD ONR-BROWARD COUNTY LINE	Basic	0.79	68.1	20.1	19.4	0.08	0.07	0,197.3	0,141.8	2.08	0.06
Freeway			41.6	41.5	39.7	13.74	7.96	19,780.2	14,770.5	0,355.1	0,144.1

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Weaving	Basic	Weaving	Basic	Off Ramp	Off Ramp	Basic	On Ramp	On Ramp	Basic	Off Ramp
1	F	E	E	F	F	F	F	F	F	F	F	C	D	D	D

	Density-Based LOS by Segment								
Segment	16	17	18	19	20	21	22	23	24
Time Step	Basic	On Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Basic
1	D	D	C	C	C	C	B	C	C

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	F	F	.	.	F	.	F	F	F	F	.	F	F	F	F

	Demand-Based LOS by Segment								
Time Step	16	17	18	19	20	21	22	23	24
1	F	F	.	.	.	.	.	.	.

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Project Properties

Analyst	AC	**Freeway Name**	I-95 Southern Corridor SB	**Analysis Period**	AM Peak
Analysis Date	7/16/2019 8:36:40 AM	**From**	MP 8.702	**Version Date**	5/15/15
Agency	F.R. Aleman & Associates	**To**	MP 0.000		
Location	MIami-Dade County	**Analysis Direction**	Southbound		
User Notes	Southern Section of I95 SB Corridor- (MP 8.072 to 0.000) From Mainline to NW 95 ST to START of Project on US-1 - Build 2045_ AM Peak				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.50500**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 ST	NW 95 ST ONR	Basic Segment	2863	Level	6936	3.94	0.00	4	70
2	NW 95 ST ONR	NW 81 ST OFR	Weaving	3680	Level	9684	3.69	0.00	4	70
3	NW 81 ST OFR	NW 79 ST ONR	Basic Segment	1728	Level	8373	3.66	0.00	4	70
4	NW 79 ST ONR	NW 62 ST OFR	Weaving	3501	Level	9636	3.55	0.00	4	70
5	NW 62 ST OFR	NW 62 ST/NW 6 AV ONR	Basic Segment	1573	Level	8465	3.61	0.00	4	70
6		NW 62 ST/NW 6 AV ONR	On Ramp	1500	Level	8672	3.60	0.00	4	70
7	NW 62 ST/NW 6 AV ONR	NW 62 ST ONR	Basic Segment	708	Level	8672	3.60	0.00	5	70
8	NW 62 ST ONR	SR 112 OFR	Weaving	3795	Level	10309	3.59	0.00	4	70
9	SR 112 OFR	SR 112/ I-195 ONR	Basic Segment	3643	Level	6557	3.56	0.00	3	70
10		SR 112/ I-195 ONR	On Ramp	1500	Level	8191	4.67	0.00	3	70
11		Managed Lanes ONR	On Ramp	1500	Level	12074	4.55	0.00	6	70
12		NW 32 ST	On Ramp	1500	Level	13901	4.26	0.00	6	70
13	NW 32 ST ONR	SR 836 OFR	Basic Segment	275	Level	13901	4.26	0.00	6	70
14		SR 836 OFR	Off Ramp	1500	Level	13901	4.26	0.00	4	70
15		I-395 OFR	Off Ramp	1500	Level	9855	4.72	0.00	3	70
16		NW 8 ST OFR	Off Ramp	1500	Level	8204	4.79	0.00	3	70
17	NW 8 ST OFR	SR 836/I-395 ONR	Basic Segment	681	Level	6173	4.55	0.00	3	70
18	SR 836/I-395 ONR	SW 8 ST OFR	Weaving	3791	Level	7976	4.95	0.00	4	70
19		DwntnDistributor OFR	Off Ramp	1500	Level	5933	4.62	0.00	3	70
20	DwntnDistributor OFR	SW 3 CT ONR	Basic Segment	818	Level	3474	3.40	0.00	3	70
21		SW 3 CT ONR	On Ramp	1500	Level	3945	3.24	0.00	3	70
22		MIAMI AVE ONR	On Ramp	1500	Level	4325	3.26	0.00	3	70
23	Miami Ave ONR	SW 8 St ONR	Basic Segment	1362	Level	4325	3.26	0.00	3	70
24	SW 8 St ONR	SW 26 Rd OFR	Weaving	3595	Level	4583	3.51	0.00	3	70
25	SW 26 Rd OFR	Beginning of I-95	Basic Segment	3173	Level	2081	1.68	0.00	2	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
6	On Ramp	207	3.38	0.00	1	470	50
10	On Ramp	1634	9.12	0.00	2	550	50
11	On Ramp	3883	4.30	0.00	2	1000	50
12	On Ramp	1827	2.35	0.00	1	1000	50
14	Off Ramp	4046	3.14	0.00	2	450	50
15	Off Ramp	1651	4.36	0.00	2	450	50
16	Off Ramp	2031	5.54	0.00	1	450	50
19	Off Ramp	2459	6.34	0.00	2	450	50
21	On Ramp	471	2.12	0.00	1	1000	50
22	On Ramp	380	3.42	0.00	1	1000	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
2	0.050	2748	3.06	0.00	2	50	1311	3.89	0.00	1	50
4	0.050	1263	2.85	0.00	1	50	1171	3.16	0.00	1	50
8	0.050	1637	3.54	0.00	1	50	3752	3.65	0.00	1	50
18	0.050	1803	6.33	0.00	2	50	2043	5.92	0.00	1	50
24	0.050	258	7.75	0.00	1	50	2502	5.04	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
2	OneSide	3680	2	1	1	0
4	OneSide	3501	2	1	1	0
8	OneSide	3791	3	1	1	0
18	OneSide	3791	2	1	1	0
24	OneSide	3590	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	NW 95 ST	NW 95 ST ONR	Basic Segment	6936	5280	9600	9415	0.74	0.56	2863	18.5	71.3	69.9	1.76	0.46	1.3	1.3	940.2	715.8	38.7	28.4	F
2	NW 95 ST ONR	NW 81 ST OFR	Weaving	9684	6060	6153	6042	1.60	1.00	0	42.7	42.0	41.3	0.98	0.60	0.4	20.2	1687.4	1055.9	24.7	9.6	F
3	NW 81 ST OFR	NW 79 ST ONR	Basic Segment	8373	5220	9600	9428	0.89	0.55	0	69.7	19.1	18.7	0.28	0.28	0.0	0.0	685.1	427.1	6.1	0.0	C
4	NW 79 ST ONR	NW 62 ST OFR	Weaving	9636	6480	9161	9001	1.07	0.72	0	50.4	28.1	27.7	0.79	0.57	0.2	0.2	1597.3	1074.2	21.3	6.0	F
5	NW 62 ST OFR	NW 62 ST/NW 6 AV ONR	Basic Segment	8465	5700	9600	9430	0.90	0.60	0	69.3	20.9	20.6	0.26	0.26	0.0	0.0	630.5	424.5	6.1	0.1	C
6		NW 62 ST/NW 6 AV ONR	On Ramp	8672	5880	9600	9430	0.92	0.62	0	63.5	23.5	23.1	0.27	0.24	0.0	0.0	615.9	417.6	6.6	0.6	C
7	NW 62 ST/NW 6 AV ONR	NW 62 ST ONR	Basic Segment	8672	5880	12000	11788	0.74	0.50	0	68.9	17.4	17.1	0.12	0.11	0.0	0.0	290.7	197.1	2.9	0.0	B
8	NW 62 ST ONR	SR 112 OFR	Weaving	10309	6780	6906	6784	1.52	1.00	0	39.0	47.7	46.8	1.11	0.62	0.5	7.0	1852.4	1218.3	31.2	13.8	F

9	SR 112 OFR	SR 112/ I-195 ONR	Basic Segment	6557	4320	7200	7074	0.93	0.61	0	69.2	21.2	20.8	0.60	0.59	0.0	0.0	1131.0	745.2	10.8	0.1	C
10		SR 112/ I-195 ONR	On Ramp	8191	5940	7200	7036	1.16	0.84	0	58.1	34.7	33.9	0.29	0.24	0.1	0.1	581.7	421.9	7.3	1.2	F
11		Managed Lanes ONR	On Ramp	12074	8039	14400	14080	0.86	0.57	0	62.7	21.4	20.9	0.27	0.24	0.0	6.4	857.5	571.0	9.1	0.9	C
12		NW 32 ST	On Ramp	13901	9475	14400	14100	0.99	0.67	1500	30.3	52.2	51.1	0.56	0.24	0.3	0.9	987.3	672.9	22.2	12.6	F
13	NW 32 ST ONR	SR 836 OFR	Basic Segment	13901	9420	14400	14100	0.99	0.67	275	23.2	67.8	66.4	0.13	0.04	0.1	0.1	181.0	122.7	5.3	3.5	F
14		SR 836 OFR	Off Ramp	13901	9420	9600	9400	1.48	1.00	0	57.2	42.0	41.1	0.30	0.24	0.1	0.1	987.3	669.0	11.7	2.1	F
15		I-395 OFR	Off Ramp	9855	6660	7200	7034	1.40	0.95	0	60.6	37.5	36.7	0.28	0.24	0.0	0.0	699.9	473.0	7.8	1.1	F
16		NW 8 ST OFR	Off Ramp	8204	5520	7200	7031	1.17	0.79	0	56.2	33.5	32.7	0.30	0.24	0.1	0.1	582.7	392.0	7.0	1.4	F
17	NW 8 ST OFR	SR 836/I-395 ONR	Basic Segment	6173	4200	7200	7040	0.88	0.60	0	67.6	21.2	20.7	0.11	0.11	0.0	0.0	199.0	135.4	2.0	0.1	C
18	SR 836/I-395 ONR	SW 8 ST OFR	Weaving	7976	5040	5194	5069	1.57	0.99	0	41.8	44.9	43.9	1.03	0.62	0.4	8.0	1431.7	904.7	21.6	8.7	F
19		DwntnDistributor OFR	Off Ramp	5933	3780	7200	7038	0.84	0.54	0	56.7	22.7	22.2	0.30	0.24	0.1	0.1	421.4	268.5	4.7	0.9	C
20	DwntnDistributor OFR	SW 3 CT ONR	Basic Segment	3474	2220	7200	7080	0.49	0.31	0	68.0	11.1	10.9	0.14	0.13	0.0	0.0	134.6	86.0	1.3	0.0	B
21		SW 3 CT ONR	On Ramp	3945	2700	7200	7085	0.56	0.38	0	64.8	14.1	13.8	0.26	0.24	0.0	0.0	280.2	191.8	3.0	0.2	B
22		MIAMI AVE ONR	On Ramp	4325	3060	7200	7085	0.61	0.43	0	64.6	16.0	15.8	0.26	0.24	0.0	0.0	307.2	217.3	3.4	0.3	B
23	Miami Ave ONR	SW 8 St ONR	Basic Segment	4325	3060	7200	7085	0.61	0.43	0	69.5	14.9	14.7	0.22	0.22	0.0	0.0	278.9	197.3	2.8	0.0	B
24	SW 8 St ONR	SW 26 Rd OFR	Weaving	4583	3300	3989	3920	1.17	0.84	0	57.2	17.4	17.1	0.71	0.58	0.1	0.1	780.1	561.7	9.8	1.8	F
25	SW 26 Rd OFR	Beginning of I-95	Basic Segment	2081	1500	4800	4760	0.44	0.32	0	69.9	10.8	10.7	0.52	0.52	0.0	0.0	312.6	225.4	3.2	0.0	A

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 ST-NW 95 ST ONR	Basic	0.74	18.5	71.3	69.9	1.76	0.46	0,940.2	0,715.8	38.65	28.43
NW 95 ST ONR-NW 81 ST OFR	Weaving	1.60	42.7	42.0	41.3	0.98	0.60	1,687.4	1,055.9	24.71	9.63
NW 81 ST OFR-NW 79 ST ONR	Basic	0.89	69.7	19.1	18.7	0.28	0.28	0,685.1	0,427.1	6.13	0.03
NW 79 ST ONR-NW 62 ST OFR	Weaving	1.07	50.4	28.1	27.7	0.79	0.57	1,597.3	1,074.2	21.31	5.96
NW 62 ST OFR-NW 62 ST/NW 6 AV ONR	Basic	0.90	69.3	20.9	20.6	0.26	0.26	0,630.5	0,424.5	6.13	0.06
-NW 62 ST/NW 6 AV ONR	OnRamp	0.92	63.5	23.5	23.1	0.27	0.24	0,615.9	0,417.6	6.57	0.61
NW 62 ST/NW 6 AV ONR-NW 62 ST ONR	Basic	0.74	68.9	17.4	17.1	0.12	0.11	0,290.7	0,197.1	2.86	0.04
NW 62 ST ONR-SR 112 OFR	Weaving	1.52	39.0	47.7	46.8	1.11	0.62	1,852.4	1,218.3	31.25	13.84
SR 112 OFR-SR 112/ I-195 ONR	Basic	0.93	69.2	21.2	20.8	0.60	0.59	1,131.0	0,745.2	10.77	0.13
-SR 112/ I-195 ONR	OnRamp	1.16	58.1	34.7	33.9	0.29	0.24	0,581.7	0,421.9	7.27	1.24
-Managed Lanes ONR	OnRamp	0.86	62.7	21.4	20.9	0.27	0.24	0,857.5	0,571.0	9.10	0.95
-NW 32 ST	OnRamp	0.99	30.3	52.2	51.1	0.56	0.24	0,987.3	0,672.9	22.24	12.63
NW 32 ST ONR-SR 836 OFR	Basic	0.99	23.2	67.8	66.4	0.13	0.04	0,181.0	0,122.7	5.30	3.54
-SR 836 OFR	OffRamp	1.48	57.2	42.0	41.1	0.30	0.24	0,987.3	0,669.0	11.69	2.13
-I-395 OFR	OffRamp	1.40	60.6	37.5	36.7	0.28	0.24	0,699.9	0,473.0	7.81	1.05
-NW 8 ST OFR	OffRamp	1.17	56.2	33.5	32.7	0.30	0.24	0,582.7	0,392.0	6.97	1.37
NW 8 ST OFR-SR 836/I-395 ONR	Basic	0.88	67.6	21.2	20.7	0.11	0.11	0,199.0	0,135.4	2.00	0.07
SR 836/I-395 ONR-SW 8 ST OFR	Weaving	1.57	41.8	44.9	43.9	1.03	0.62	1,431.7	0,904.7	21.65	8.72
-DwntnDistributor OFR	OffRamp	0.84	56.7	22.7	22.2	0.30	0.24	0,421.4	0,268.5	4.73	0.90
DwntnDistributor OFR-SW 3 CT ONR	Basic	0.49	68.0	11.1	10.9	0.14	0.13	0,134.6	0,086.0	1.27	0.04
-SW 3 CT ONR	OnRamp	0.56	64.8	14.1	13.8	0.26	0.24	0,280.2	0,191.8	2.96	0.22
-MIAMI AVE ONR	OnRamp	0.61	64.6	16.0	15.8	0.26	0.24	0,307.2	0,217.3	3.36	0.26
Miami Ave ONR-SW 8 St ONR	Basic	0.61	69.5	14.9	14.7	0.22	0.22	0,278.9	0,197.3	2.84	0.02
SW 8 St ONR-SW 26 Rd OFR	Weaving	1.17	57.2	17.4	17.1	0.71	0.58	0,780.1	0,561.7	9.82	1.80
SW 26 Rd OFR-Beginning of I-95	Basic	0.44	69.9	10.8	10.7	0.52	0.52	0,312.6	0,225.4	3.22	0.00
Freeway			45.8	33.2	32.5	11.86	8.15	18,453.6	12,386.2	0,270.6	0,093.7

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Weaving	Basic	Weaving	Basic	On Ramp	Basic	Weaving	Basic	On Ramp	On Ramp	On Ramp	Basic	Off Ramp	Off Ramp
1	F	E	C	D	C	C	B	F	C	D	C	F	F	E	E

	Density-Based LOS by Segment									
Segment	16	17	18	19	20	21	22	23	24	25
Time Step	Off Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	On Ramp	Basic	Weaving	Basic
1	D	C	F	C	B	B	B	B	B	A

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	·	F	·	F	·	·	·	F	·	F	·	·	·	F	F

	Demand-Based LOS by Segment									
Time Step	16	17	18	19	20	21	22	23	24	25
1	F	·	F	·	·	·	·	·	F	·

HCS 2010 Freeway Facilities

Project Properties

Analyst	AC	**Freeway Name**	I-95 Southern Corridor_SB _PM Peak	**Analysis Period**	PM Peak
Analysis Date	7/16/2019 8:36:40 AM	**From**	MP 8.702	**Version Date**	5/15/15
Agency	F.R Aleman & Associates	**To**	MP 0.000		
Location	Miami-Dade County	**Analysis Direction**	Southbound		
User Notes	I-95 Southern Corridor SB_ (MP 8.702 to MP 0.000) from Mainline to NW NW 95 ST to START of Project on US-1 - Build 2045- PM Peak				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**9.50500**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	NW 95 ST	NW 95 ST ONR	Basic Segment	2863	Level	6629	8.16	0.00	4	70
2	NW 95 ST ONR	NW 81 ST OFR	Weaving	3680	Level	8444	7.47	0.00	4	70
3	NW 81 ST OFR	NW 79 ST ONR	Basic Segment	1728	Level	7194	8.08	0.00	4	70
4	NW 79 ST ONR	NW 62 ST OFR	Weaving	3501	Level	8261	7.64	0.00	4	70
5	NW 62 ST OFR	NW 6 Av/NW 62 ST ONR	Basic Segment	1573	Level	7093	8.06	0.00	4	70
6		NW 6 Av/NW 62 ST ONR	On Ramp	1500	Level	7268	7.95	0.00	4	70
7	NW 6 Av/NW 62 ST ONR	NW 62 ST ONR	Basic Segment	708	Level	7268	7.95	0.00	5	70
8	NW 62 ST ONR	SR 112 OFR	Weaving	3795	Level	8546	7.48	0.00	4	70
9	SR 112 OFR	SR 112/ I-195 ONR	Basic Segment	3643	Level	5407	6.93	0.00	3	70
10		SR 112/ I-195 ONR	On Ramp	1500	Level	7229	6.83	0.00	3	70
11		Managed Lanes ONR	On Ramp	1500	Level	10104	8.73	0.00	6	70
12		NW 32 ST	On Ramp	1500	Level	12686	7.54	0.00	6	70
13	NW 32 ST ONR	SR 836 OFR	Basic Segment	275	Level	12686	7.54	0.00	6	70
14		SR 836 OFR	Off Ramp	1500	Level	12686	7.54	0.00	4	70
15		I-395 OFR	Off Ramp	1500	Level	9368	7.71	0.00	3	70
16		NW 8 ST OFR	Off Ramp	1500	Level	8028	7.31	0.00	3	70
17	NW 8 ST OFR	SR 836/I-395 ONR	Basic Segment	681	Level	6144	6.74	0.00	3	70
18	SR 836/I-395 OFR	SW 8 ST OFR	Weaving	3791	Level	8674	7.51	0.00	4	70
19		DwntnDistributor OFR	Off Ramp	1500	Level	6501	8.32	0.00	3	70
20	DwntnDistributor OFR	SW 3 CT ONR	Basic Segment	818	Level	3656	6.38	0.00	3	70
21		SW 3 CT ONR	On Ramp	1500	Level	4398	5.74	0.00	3	70
22		MIAMI AVE ONR	On Ramp	1500	Level	5316	4.84	0.00	3	70
23	MIAMI AVE ONR	SW 8 ST ONR	Basic Segment	1362	Level	5316	4.84	0.00	3	70
24	SW 8 ST ONR	SW 26 RD OFR	Weaving	3595	Level	5577	4.72	0.00	3	70
25	SW 26 RD OFR	Beginning of I-95	Basic Segment	3173	Level	2602	4.13	0.00	2	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
6	On Ramp	175	3.38	0.00	1	470	50
10	On Ramp	1822	6.53	0.00	2	550	50
11	On Ramp	2875	13.50	0.00	2	1000	50
12	On Ramp	2582	2.87	0.00	1	1000	50
14	Off Ramp	3318	7.05	0.00	2	450	50
15	Off Ramp	1340	10.10	0.00	2	450	50
16	Off Ramp	1884	9.18	0.00	1	450	50
19	Off Ramp	2845	10.80	0.00	2	450	50
21	On Ramp	742	2.56	0.00	1	1000	50
22	On Ramp	918	0.54	0.00	1	1000	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
2	0.050	1815	4.96	0.00	2	50	1250	4.00	0.00	1	50
4	0.050	1067	4.69	0.00	1	50	1168	5.05	0.00	1	50
8	0.050	1278	4.77	0.00	1	50	3139	8.41	0.00	1	50
18	0.050	2530	9.40	0.00	2	50	2173	5.11	0.00	1	50
24	0.050	261	2.30	0.00	1	50	2975	5.24	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
2	OneSide	3680	2	1	1	0
4	OneSide	3501	2	1	1	0
8	OneSide	3791	3	1	1	0
18	OneSide	3791	2	1	1	0
24	OneSide	3590	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	NW 95 ST	NW 95 ST ONR	Basic Segment	6629	6000	9600	9224	0.72	0.65	2863	26.6	56.4	54.2	1.22	0.46	0.8	0.8	898.6	813.4	30.6	19.0	F
2	NW 95 ST ONR	NW 81 ST OFR	Weaving	8444	6900	7129	6872	1.23	1.00	0	45.3	40.3	38.9	0.92	0.60	0.3	8.7	1471.3	1202.3	26.6	9.4	F
3	NW 81 ST OFR	NW 79 ST ONR	Basic Segment	7194	5880	9600	9227	0.78	0.64	0	68.7	22.2	21.4	0.29	0.28	0.0	0.0	588.6	481.1	7.0	0.1	C
4	NW 79 ST ONR	NW 62 ST OFR	Weaving	8261	6900	9112	8777	0.94	0.79	0	49.5	33.0	31.8	0.80	0.57	0.2	0.2	1369.4	1143.8	23.1	6.7	D
5	NW 62 ST OFR	NW 6 Av/NW 62 ST ONR	Basic Segment	7093	5940	9600	9228	0.77	0.64	0	68.6	22.5	21.6	0.26	0.26	0.0	0.0	528.3	442.4	6.4	0.1	C
6		NW 6 Av/NW 62 ST ONR	On Ramp	7268	6061	9600	9233	0.79	0.66	389	60.8	24.9	24.0	0.28	0.24	0.0	0.0	516.2	430.5	7.1	0.9	C
7	NW 6 Av/NW 62 ST ONR	NW 62 ST ONR	Basic Segment	7268	5880	12000	11541	0.63	0.51	708	20.4	57.7	55.5	0.39	0.11	0.3	0.3	243.6	197.1	9.7	6.8	F

8	NW 62 ST ONR	SR 112 OFR	Weaving	8546	6720	6977	6726	1.27	1.00	0	42.9	39.4	37.9	1.01	0.62	0.4	4.3	1535.6	1207.5	28.2	10.9	F
9	SR 112 OFR	SR 112/ I-195 ONR	Basic Segment	5407	4260	7200	6959	0.78	0.61	0	69.2	21.2	20.5	0.60	0.59	0.0	0.0	932.7	734.8	10.6	0.1	C
10		SR 112/ I-195 ONR	On Ramp	7229	6060	7200	6962	1.04	0.87	0	57.0	36.3	35.1	0.30	0.24	0.1	0.1	513.4	430.4	7.6	1.4	F
11		Managed Lanes ONR	On Ramp	10104	7898	14400	13798	0.73	0.57	1038	44.9	29.3	28.1	0.38	0.24	0.1	2.9	717.6	560.9	12.5	4.5	D
12		NW 32 ST	On Ramp	12686	8864	14400	13877	0.91	0.64	1500	22.7	65.0	62.7	0.75	0.24	0.5	8.1	901.0	629.5	27.7	18.7	F
13	NW 32 ST ONR	SR 836 OFR	Basic Segment	12686	8804	14400	13877	0.91	0.63	275	20.4	71.8	69.2	0.15	0.04	0.1	0.1	165.2	114.6	5.6	4.0	F
14		SR 836 OFR	Off Ramp	12686	8757	9600	9251	1.37	0.95	1500	45.6	48.0	46.2	0.37	0.24	0.1	0.1	901.0	621.9	13.6	4.7	F
15		I-395 OFR	Off Ramp	9368	6374	7200	6933	1.35	0.92	1500	48.2	44.1	42.4	0.35	0.24	0.1	0.1	665.3	452.7	9.4	2.9	F
16		NW 8 ST OFR	Off Ramp	8028	5338	7200	6946	1.16	0.77	1500	33.5	53.1	51.2	0.51	0.24	0.3	0.3	570.2	379.1	11.3	5.9	F
17	NW 8 ST OFR	SR 836/I-395 ONR	Basic Segment	6144	3960	7200	6965	0.88	0.57	681	18.4	71.9	69.6	0.42	0.11	0.3	0.3	198.1	127.7	7.0	5.1	F
18	SR 836/I-395 OFR	SW 8 ST OFR	Weaving	8674	4500	4684	4514	1.92	1.00	0	41.9	41.6	40.1	1.03	0.62	0.4	26.6	1557.0	807.7	19.3	7.8	F
19		DwntnDistributor OFR	Off Ramp	6501	3360	7200	6913	0.94	0.49	0	53.6	21.8	20.9	0.32	0.24	0.1	0.1	461.7	238.6	4.4	1.0	C
20	DwntnDistributor OFR	SW 3 CT ONR	Basic Segment	3656	1920	7200	6977	0.52	0.28	0	67.5	9.8	9.5	0.14	0.13	0.0	0.0	141.6	74.4	1.1	0.0	A
21		SW 3 CT ONR	On Ramp	4398	2640	7200	6999	0.63	0.38	0	64.7	13.9	13.5	0.26	0.24	0.0	0.0	312.4	187.5	2.9	0.2	B
22		MIAMI AVE ONR	On Ramp	5316	3540	7200	7030	0.76	0.50	0	64.0	18.8	18.3	0.27	0.24	0.0	0.0	377.6	251.4	3.9	0.3	B
23	MIAMI AVE ONR	SW 8 ST ONR	Basic Segment	5316	3540	7200	7030	0.76	0.50	0	69.4	17.4	17.0	0.22	0.22	0.0	0.0	342.8	228.3	3.3	0.0	B
24	SW 8 ST ONR	SW 26 RD OFR	Weaving	5577	3840	4165	4069	1.37	0.94	0	60.3	16.3	15.9	0.68	0.58	0.1	0.1	949.3	653.6	10.8	1.5	F
25	SW 26 RD OFR	Beginning of I-95	Basic Segment	2602	1800	4800	4703	0.55	0.38	0	70.0	13.1	12.9	0.52	0.52	0.0	0.0	390.9	270.4	3.9	0.0	B

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
NW 95 ST-NW 95 ST ONR	Basic	0.72	26.6	56.4	54.2	1.22	0.46	0,898.6	0,813.4	30.58	18.96
NW 95 ST ONR-NW 81 ST OFR	Weaving	1.23	45.3	40.3	38.9	0.92	0.60	1,471.3	1,202.3	26.56	9.38
NW 81 ST OFR-NW 79 ST ONR	Basic	0.78	68.7	22.2	21.4	0.29	0.28	0,588.6	0,481.1	7.00	0.13
NW 79 ST ONR-NW 62 ST OFR	Weaving	0.94	49.5	33.0	31.8	0.80	0.57	1,369.4	1,143.8	23.09	6.75
NW 62 ST OFR-NW 6 Av/NW 62 ST ONR	Basic	0.77	68.6	22.5	21.6	0.26	0.26	0,528.3	0,442.4	6.45	0.13
-NW 6 Av/NW 62 ST ONR	OnRamp	0.79	60.8	24.9	24.0	0.28	0.24	0,516.2	0,430.5	7.09	0.94
NW 6 Av/NW 62 ST ONR-NW 62 ST ONR	Basic	0.63	20.4	57.7	55.5	0.39	0.11	0,243.6	0,197.1	9.66	6.85
NW 62 ST ONR-SR 112 OFR	Weaving	1.27	42.9	39.4	37.9	1.01	0.62	1,535.6	1,207.5	28.15	10.90
SR 112 OFR-SR 112/ I-195 ONR	Basic	0.78	69.2	21.2	20.5	0.60	0.59	0,932.7	0,734.8	10.62	0.13
-SR 112/ I-195 ONR	OnRamp	1.04	57.0	36.3	35.1	0.30	0.24	0,513.4	0,430.4	7.55	1.41
-Managed Lanes ONR	OnRamp	0.73	44.9	29.3	28.1	0.38	0.24	0,717.6	0,560.9	12.49	4.47
-NW 32 ST	OnRamp	0.91	22.7	65.0	62.7	0.75	0.24	0,901.0	0,629.5	27.72	18.72
NW 32 ST ONR-SR 836 OFR	Basic	0.91	20.4	71.8	69.2	0.15	0.04	0,165.2	0,114.6	5.61	3.97
-SR 836 OFR	OffRamp	1.37	45.6	48.0	46.2	0.37	0.24	0,901.0	0,621.9	13.63	4.74
-I-395 OFR	OffRamp	1.35	48.2	44.1	42.4	0.35	0.24	0,665.3	0,452.7	9.39	2.92
-NW 8 ST OFR	OffRamp	1.16	33.5	53.1	51.2	0.51	0.24	0,570.2	0,379.1	11.32	5.90
NW 8 ST OFR-SR 836/I-395 ONR	Basic	0.88	18.4	71.9	69.6	0.42	0.11	0,198.1	0,127.7	6.96	5.13
SR 836/I-395 OFR-SW 8 ST OFR	Weaving	1.92	41.9	41.6	40.1	1.03	0.62	1,557.0	0,807.7	19.30	7.76
-DwntnDistributor OFR	OffRamp	0.94	53.6	21.8	20.9	0.32	0.24	0,461.7	0,238.6	4.45	1.04
DwntnDistributor OFR-SW 3 CT ONR	Basic	0.52	67.5	9.8	9.5	0.14	0.13	0,141.6	0,074.4	1.10	0.04
-SW 3 CT ONR	OnRamp	0.63	64.7	13.9	13.5	0.26	0.24	0,312.4	0,187.5	2.90	0.22
-MIAMI AVE ONR	OnRamp	0.76	64.0	18.8	18.3	0.27	0.24	0,377.6	0,251.4	3.93	0.34
MIAMI AVE ONR-SW 8 ST ONR	Basic	0.76	69.4	17.4	17.0	0.22	0.22	0,342.8	0,228.3	3.29	0.03
SW 8 ST ONR-SW 26 RD OFR	Weaving	1.37	60.3	16.3	15.9	0.68	0.58	0,949.3	0,653.6	10.84	1.50
SW 26 RD OFR-Beginning of I-95	Basic	0.55	70.0	13.1	12.9	0.52	0.52	0,390.9	0,270.4	3.87	0.00
Freeway			43.2	35.1	33.9	12.45	8.15	17,249.4	12,681.8	0,293.5	0,112.4

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Weaving	Basic	Weaving	Basic	On Ramp	Basic	Weaving	Basic	On Ramp	On Ramp	On Ramp	Basic	Off Ramp	Off Ramp
1	F	E	C	D	C	C	F	E	C	E	D	F	F	F	E

	Density-Based LOS by Segment									
Segment	16	17	18	19	20	21	22	23	24	25
Time Step	Off Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	On Ramp	Basic	Weaving	Basic
1	F	F	E	C	A	B	B	B	B	B

	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	·	F	·	·	·	·	·	F	·	F	·	·	·	F	F

Demand-Based LOS by Segment

Time Step	16	17	18	19	20	21	22	23	24	25
1	F	.	F	.	.	.	.	.	F	.

HCS 2010 Freeway Facilities

Project Properties

Analyst	AC	**Freeway Name**	I-95 Norhern Corridor SB _ AM Peak	**Analysis Period**	AM Peak
Analysis Date	7/11/2019 10:42:41 AM	**From**	IVES DAIRY RD	**Version Date**	5/15/15
Agency	F.R. Aleman & Associates	**To**	NW 95 ST		
Location	Miami Dade County	**Analysis Direction**	SOUTHBOUND		
User Notes	I-95 Northern Corridor _SB 7-8 AM_ from MP 17.328 to 8.702-TDM 2045 Build-AM Peak				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**8.93800**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	BROWARD COUNTY LINE	IVES DAIRY RD OFR	Basic Segment	1447	Level	7431	3.67	0.00	4	70
2		IVES DAIRY RD OFR	Off Ramp	1500	Level	7431	3.67	0.00	4	70
3	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	3205	Level	5651	4.14	0.00	4	70
4		IVES DAIRY RD ONR	On Ramp	1500	Level	7821	3.73	0.00	4	70
5	IVES DAIRY RD ONR	EXP LANES OFR	Basic Segment	2429	Level	7821	3.73	0.00	4	70
6		EXP LANES OFR	Off Ramp	1500	Level	7821	3.73	0.00	3	70
7	EXP LANES OFR	SR 860 OFR	Basic Segment	781	Level	7384	3.71	0.00	4	70
8		SR 860 OFR	Off Ramp	1500	Level	7384	3.71	0.00	3	70
9	SR 860 OFR	SR 860 ONR	Basic Segment	2281	Level	6549	3.92	0.00	3	70
10		SR 860 ONR	On Ramp	1500	Level	7667	3.78	0.00	3	70
11	SR 860 ONR	US 441/NW 2 AVE OFR	Basic Segment	1683	Level	7667	3.78	0.00	3	70
12		US-441/NW 2 AVE OFR	Off Ramp	1500	Level	7667	3.78	0.00	3	70
13		FL TURNPIKE SB OFR	Off Ramp	1500	Level	6426	3.87	0.00	3	70
14	TRNPKE/SR 826 OFR	SR 7/US 411 ONR	Basic Segment	1315	Level	4504	4.33	0.00	3	70
15		SR 7/US 411 ONR	On Ramp	1500	Level	5385	3.86	0.00	3	70
16	SR 7/US-441 SB ONR	NW 167 ST ONR	Basic Segment	538	Level	5385	3.86	0.00	3	70
17		NW 167 ST ONR	On Ramp	1500	Level	6336	3.80	0.00	3	70
18	NW 167 ST ONR	EXP LANES INGRESS	Basic Segment	185	Level	6336	3.80	0.00	3	70
19		EXP LANES INGRESS	Off Ramp	1000	Level	6336	3.80	0.00	3	70
20	EXP LANES INGRESS	FL TURNPIKE ONR	Basic Segment	185	Level	3853	3.97	0.00	3	70
21		FL TURNPIKE ONR	On Ramp	1500	Level	8184	14.57	0.00	3	70
22	FL TURNPIKE ONR	NW 151 ST ONR	Basic Segment	940	Level	8184	14.57	0.00	4	70
23	NW 151 ST ONR	OPALOCKA BLVD OFR	Weaving	3094	Level	8821	13.66	0.00	5	70
24		NW 125 ST OFR	Off Ramp	1500	Level	8092	14.48	0.00	3	70
25	NW 125 ST OFR	NW 135 ST ONR	Basic Segment	3474	Level	5917	18.80	0.00	4	70
26		NW 135 ST ONR	On Ramp	1500	Level	6104	18.36	0.00	4	70
27	NW 135 ST ONR	NW 125 ST ONR	Basic Segment	132	Level	6104	18.36	0.00	4	70
28		NW 125 ST ONR	On Ramp	1500	Level	7210	16.05	0.00	4	70
29	NW 125 ST ONR	NW 119 ST ONR	Basic Segment	1341	Level	7210	16.05	0.00	4	70
30		NW 119 ST ONR	On Ramp	1500	Level	7286	16.00	0.00	4	70
	NW 119 ST	NW 95 ST	Basic							

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	1780	2.19	0.00	2	1500	50
4	On Ramp	2170	2.67	0.00	1	1180	50
6	Off Ramp	437	4.12	0.00	1	600	50
8	Off Ramp	835	2.04	0.00	1	460	50
10	On Ramp	1118	2.95	0.00	1	350	50
12	Off Ramp	1241	3.30	0.00	1	1100	50
13	Off Ramp	1922	2.79	0.00	2	1500	50
15	On Ramp	881	1.46	0.00	1	340	50
17	On Ramp	951	3.47	0.00	1	220	50
19	Off Ramp	2483	3.54	0.00	2	450	50
21	On Ramp	4331	24.00	0.00	2	1500	50
24	Off Ramp	2175	2.73	0.00	2	790	50
26	On Ramp	187	4.39	0.00	1	700	50
28	On Ramp	1106	3.26	0.00	1	470	50
30	On Ramp	76	11.80	0.00	1	330	50
32	Off Ramp	349	3.06	0.00	1	390	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
23	0.050	637	1.98	0.00	1	50	729	4.53	0.00	1	50

31	ONR	OFR	Segment	660	Level	7286	16.00	0.00	4	70
32		NW 95 ST OFR	Off Ramp	1500	Level	7286	16.00	0.00	4	70

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
23	OneSide	3094	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	BROWARD COUNTY LINE	IVES DAIRY RD OFR	Basic Segment	7431	7440	9600	9427	0.79	0.79	0	64.4	29.4	28.9	0.26	0.23	0.0	0.0	509.1	509.7	7.9	0.6	D
2		IVES DAIRY RD OFR	Off Ramp	7431	7440	9600	9427	0.79	0.79	0	63.8	29.7	29.2	0.27	0.24	0.0	0.0	527.8	528.4	8.3	0.7	D
3	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	5651	5630	9600	9405	0.60	0.60	104	64.6	21.8	21.4	0.56	0.52	0.0	0.0	857.5	854.4	13.2	1.0	C
4		IVES DAIRY RD ONR	On Ramp	7821	7312	9600	9424	0.83	0.78	1372	37.7	48.4	47.6	0.45	0.24	0.2	1.7	555.5	519.3	13.8	6.3	F
5	IVES DAIRY RD ONR	EXP LANES OFR	Basic Segment	7821	7080	9600	9424	0.83	0.75	2429	30.4	58.3	57.2	0.91	0.39	0.5	0.5	899.5	814.3	26.8	15.2	F
6		EXP LANES OFR	Off Ramp	7821	7080	7200	7068	1.11	1.00	0	62.5	38.4	37.7	0.27	0.24	0.0	0.0	555.5	502.8	8.0	0.9	F
7	EXP LANES OFR	SR 860 OFR	Basic Segment	7384	6660	9600	9425	0.78	0.71	0	67.1	25.3	24.8	0.13	0.13	0.0	0.0	273.1	246.3	3.7	0.1	C
8		SR 860 OFR	Off Ramp	7384	6660	7200	7069	1.04	0.94	0	62.1	36.4	35.8	0.27	0.24	0.0	0.0	524.4	473.0	7.6	0.9	F
9	SR 860 OFR	SR 860 ONR	Basic Segment	6549	5940	7200	7062	0.93	0.84	0	62.2	32.4	31.8	0.42	0.37	0.0	0.0	707.3	641.5	10.3	1.1	D
10		SR 860 ONR	On Ramp	7667	7020	7200	7067	1.08	0.99	0	49.3	48.2	47.3	0.35	0.24	0.1	0.1	544.5	498.6	10.1	3.0	F
11	SR 860 ONR	US 441/NW 2 AVE OFR	Basic Segment	7667	7020	7200	7067	1.08	0.99	0	53.7	44.4	43.5	0.36	0.27	0.1	0.1	611.0	559.4	10.4	2.4	F
12		US-441/NW 2 AVE OFR	Off Ramp	7667	7020	7200	7067	1.08	0.99	0	60.6	39.3	38.6	0.28	0.24	0.0	0.0	544.5	498.6	8.2	1.1	F
13		FL TURNPIKE SB OFR	Off Ramp	6426	5880	7200	7063	0.91	0.83	0	60.2	33.2	32.5	0.28	0.24	0.0	0.0	456.4	417.6	6.9	1.0	D
14	TRNPKE/SR 826 OFR	SR 7/US 411 ONR	Basic Segment	4504	4140	7200	7047	0.64	0.59	0	69.0	20.4	20.0	0.22	0.21	0.0	0.0	280.4	257.8	3.7	0.1	C
15		SR 7/US 411 ONR	On Ramp	5385	5040	7200	7064	0.76	0.71	0	41.7	40.9	40.2	0.41	0.24	0.2	0.2	382.5	358.0	8.6	3.5	E
16	SR 7/US-441 SB ONR	NW 167 ST ONR	Basic Segment	5385	5040	7200	7064	0.76	0.71	0	64.6	26.5	26.0	0.09	0.09	0.0	0.0	137.2	128.4	2.0	0.2	D
17		NW 167 ST ONR	On Ramp	6336	5940	7200	7066	0.90	0.84	0	28.3	71.0	69.7	0.60	0.24	0.4	0.4	450.0	421.9	14.9	8.9	E
18	NW 167 ST ONR	EXP LANES INGRESS	Basic Segment	6336	5940	7200	7066	0.90	0.84	0	59.4	34.0	33.4	0.04	0.03	0.0	0.0	55.5	52.0	0.9	0.1	D
19		EXP LANES INGRESS	Off Ramp	6336	5940	7200	7066	0.90	0.84	0	58.5	34.5	33.8	0.19	0.16	0.0	0.0	300.0	281.3	4.8	0.8	D
20	EXP LANES INGRESS	FL TURNPIKE ONR	Basic Segment	3853	3600	7200	7060	0.55	0.51	0	65.6	18.7	18.3	0.03	0.03	0.0	0.0	33.8	31.5	0.5	0.0	C
21		FL TURNPIKE ONR	On Ramp	8184	5700	7200	6711	1.22	0.85	0	42.9	44.8	41.7	0.40	0.24	0.2	8.1	581.3	404.8	9.4	3.7	F
22	FL TURNPIKE ONR	NW 151 ST ONR	Basic Segment	8184	5700	9600	8948	0.91	0.64	0	66.2	23.1	21.5	0.16	0.15	0.0	0.0	364.3	253.7	3.8	0.2	C
23	NW 151 ST ONR	OPALOCKA BLVD OFR	Weaving	8821	6360	11678	10931	0.81	0.58	0	60.0	5.2	4.9	0.59	0.50	0.1	0.1	1292.2	931.7	15.5	2.2	A
24		NW 125 ST OFR	Off Ramp	8092	5820	7200	6714	1.21	0.87	0	59.5	35.0	32.6	0.29	0.24	0.0	0.0	574.7	413.4	6.9	1.0	F
25	NW 125 ST OFR	NW 135 ST ONR	Basic Segment	5917	4260	9600	8775	0.67	0.49	0	69.8	16.7	15.3	0.57	0.56	0.0	0.0	973.3	700.7	10.0	0.0	B
26		NW 135 ST ONR	On Ramp	6104	4440	9600	8793	0.69	0.50	0	64.7	18.7	17.1	0.26	0.24	0.0	0.0	433.5	315.3	4.9	0.4	B
27	NW 135 ST ONR	NW 125 ST ONR	Basic Segment	6104	4440	9600	8793	0.69	0.50	0	68.6	17.7	16.2	0.02	0.02	0.0	0.0	38.2	27.8	0.4	0.0	B
28		NW 125 ST ONR	On Ramp	7210	5580	9600	8887	0.81	0.63	0	63.1	23.5	21.8	0.27	0.24	0.0	0.0	512.1	396.3	6.3	0.6	C
29	NW 125 ST ONR	NW 119 ST ONR	Basic Segment	7210	5580	9600	8887	0.81	0.63	0	68.9	21.9	20.2	0.22	0.22	0.0	0.0	457.8	354.3	5.1	0.1	C
30		NW 119 ST ONR	On Ramp	7286	5640	9600	8889	0.82	0.63	0	63.3	24.0	22.2	0.27	0.24	0.0	0.0	517.5	400.6	6.3	0.6	C
31	NW 119 ST ONR	NW 95 ST OFR	Basic Segment	7286	5640	9600	8889	0.82	0.63	0	68.8	22.1	20.5	0.11	0.11	0.0	0.0	227.7	176.3	2.6	0.0	C
32		NW 95 ST OFR	Off Ramp	7286	5640	9600	8889	0.82	0.63	0	66.2	23.0	21.3	0.26	0.24	0.0	0.0	517.5	400.6	6.0	0.3	C

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
BROWARD COUNTY LINE-IVES DAIRY RD OFR	Basic	0.79	64.4	29.4	28.9	0.26	0.23	0,509.1	0,509.7	7.91	0.63
-IVES DAIRY RD OFR	OffRamp	0.79	63.8	29.7	29.2	0.27	0.24	0,527.8	0,528.4	8.28	0.74
IVES DAIRY RD OFR-IVES DAIRY RD ONR	Basic	0.60	64.6	21.8	21.4	0.56	0.52	0,857.5	0,854.4	13.23	1.03
-IVES DAIRY RD ONR	OnRamp	0.83	37.7	48.4	47.6	0.45	0.24	0,555.5	0,519.3	13.76	6.34
IVES DAIRY RD ONR-EXP LANES OFR	Basic	0.83	30.4	58.3	57.2	0.91	0.39	0,899.5	0,814.3	26.82	15.19
-EXP LANES OFR	OffRamp	1.11	62.5	38.4	37.7	0.27	0.24	0,555.5	0,502.8	8.04	0.86
EXP LANES OFR-SR 860 OFR	Basic	0.78	67.1	25.3	24.8	0.13	0.13	0,273.1	0,246.3	3.67	0.15
-SR 860 OFR	OffRamp	1.04	62.1	36.4	35.8	0.27	0.24	0,524.4	0,473.0	7.62	0.86
SR 860 OFR-SR 860 ONR	Basic	0.93	62.2	32.4	31.8	0.42	0.37	0,707.3	0,641.5	10.31	1.15
-SR 860 ONR	OnRamp	1.08	49.3	48.2	47.3	0.35	0.24	0,544.5	0,498.6	10.11	2.99
SR 860 ONR-US 441/NW 2 AVE OFR	Basic	1.08	53.7	44.4	43.5	0.36	0.27	0,611.0	0,559.4	10.41	2.42
-US-441/NW 2 AVE OFR	OffRamp	1.08	60.6	39.3	38.6	0.28	0.24	0,544.5	0,498.6	8.22	1.10
-FL TURNPIKE SB OFR	OffRamp	0.91	60.2	33.2	32.5	0.28	0.24	0,456.4	0,417.6	6.93	0.97
TRNPKE/SR 826 OFR-SR 7/US 411 ONR	Basic	0.64	69.0	20.4	20.0	0.22	0.21	0,280.4	0,257.8	3.74	0.05
-SR 7/US 411 ONR	OnRamp	0.76	41.7	40.9	40.2	0.41	0.24	0,382.5	0,358.0	8.59	3.47
SR 7/US-441 SB ONR-NW 167 ST ONR	Basic	0.76	64.6	26.5	26.0	0.09	0.09	0,137.2	0,128.4	1.99	0.15
-NW 167 ST ONR	OnRamp	0.90	28.3	71.0	69.7	0.60	0.24	0,450.0	0,421.9	14.90	8.87
NW 167 ST ONR-EXP LANES INGRESS	Basic	0.90	59.4	34.0	33.4	0.04	0.03	0,055.5	0,052.0	0.88	0.13
-EXP LANES INGRESS	OffRamp	0.90	58.5	34.5	33.8	0.19	0.16	0,300.0	0,281.3	4.81	0.79
EXP LANES INGRESS-FL TURNPIKE ONR	Basic	0.55	65.6	18.7	18.3	0.03	0.03	0,033.8	0,031.5	0.48	0.03
-FL TURNPIKE ONR	OnRamp	1.22	42.9	44.8	41.7	0.40	0.24	0,581.3	0,404.8	9.44	3.66
FL TURNPIKE ONR-NW 151 ST ONR	Basic	0.91	66.2	23.1	21.5	0.16	0.15	0,364.3	0,253.7	3.83	0.21
NW 151 ST ONR-OPALOCKA BLVD OFR	Weaving	0.81	60.0	5.2	4.9	0.59	0.50	1,292.2	0,931.7	15.54	2.23
-NW 125 ST OFR	OffRamp	1.21	59.5	35.0	32.6	0.29	0.24	0,574.7	0,413.4	6.95	1.04
NW 125 ST OFR-NW 135 ST ONR	Basic	0.67	69.8	16.7	15.3	0.57	0.56	0,973.3	0,700.7	10.04	0.03
-NW 135 ST ONR	OnRamp	0.69	64.7	18.7	17.1	0.26	0.24	0,433.5	0,315.3	4.87	0.37
NW 135 ST ONR-NW 125 ST ONR	Basic	0.69	68.6	17.7	16.2	0.02	0.02	0,038.2	0,027.8	0.40	0.01
-NW 125 ST ONR	OnRamp	0.81	63.1	23.5	21.8	0.27	0.24	0,512.1	0,396.3	6.29	0.62
NW 125 ST ONR-NW 119 ST ONR	Basic	0.81	68.9	21.9	20.2	0.22	0.22	0,457.8	0,354.3	5.14	0.08
-NW 119 ST ONR	OnRamp	0.82	63.3	24.0	22.2	0.27	0.24	0,517.5	0,400.6	6.33	0.60
NW 119 ST ONR-NW 95 ST OFR	Basic	0.82	68.8	22.1	20.5	0.11	0.11	0,227.7	0,176.3	2.56	0.04
-NW 95 ST OFR	OffRamp	0.82	66.2	23.0	21.3	0.26	0.24	0,517.5	0,400.6	6.05	0.32
Freeway			53.9	30.0	28.9	9.80	7.66	15,695.3	13,370.1	0,248.1	0,057.1

	Density-Based LOS by Segment														
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp

1	D	D	C	F	F	E	C	E	D	E	E	E	D	C	E
	Density-Based LOS by Segment														
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	On Ramp
1	D	E	D	D	C	E	C	A	D	B	B	B	C	C	C
	Density-Based LOS by Segment														
Segment	31	32													
Time Step	Basic	Off Ramp													
1	C	C													
	Demand-Based LOS by Segment														
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	F	.	F	.	F	F	F	.	.	.
	Demand-Based LOS by Segment														
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	.	.	.	.	.	F	.	.	F	.	.	.	.	.	.
	Demand-Based LOS by Segment														
Time Step	31	32													
1	.	.													

HCS 2010 Freeway Facilities

Project Properties

Analyst	AC	**Freeway Name**	I-95 Northern Corridor SB-PM peak	**Analysis Period**	PM Peak
Analysis Date	7/11/2019 10:42:41 AM	**From**	IVES DAIRY RD	**Version Date**	5/15/15
Agency	F.R. Aleman & Associates	**To**	NW 95 ST		
Location	MIami Dade County	**Analysis Direction**	SOUTHBOUND		
User Notes	Northern Corridor _SB 5-6 PM_ 17.328 to 8.702-TDM 2045 Build- PM Peak				
File Name	C:\Users\Ian.Rairden\AppData\Local\Temp\preview.xml				

Facility-wide Values

Jam Density (pc/h/ln)	120	**Time Period Duration (min)**	15	**Facility Length (mi)**	**8.93800**

Segment Input Data

Time Period 1

Mainline Data

Seg #	From	To	Type	Length	Terrain	Adj. Demand	% Trucks	% RVs	# Lanes	FFS
1	BROWARD COUNTY LINE	IVES DAIRY RD OFR	Basic Segment	1447	Level	6896	4.41	0.00	4	70
2		IVES DAIRY RD OFR	Off Ramp	1500	Level	6896	4.41	0.00	4	70
3	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	3205	Level	4733	6.09	0.00	4	70
4		IVES DAIRY RD ONR	On Ramp	1500	Level	6566	5.15	0.00	4	70
5	IVES DAIRY RD ONR	EXP LANES OFR	Basic Segment	2429	Level	6566	5.15	0.00	4	70
6		EXP LANES OFR	Off Ramp	1500	Level	6566	5.15	0.00	3	70
7	EXP LANES OFR	SR 860 OFR	Basic Segment	781	Level	6242	5.14	0.00	4	70
8		SR 860 OFR	Off Ramp	1500	Level	6242	5.14	0.00	4	70
9	SR 860 OFR	SR 860 ONR	Basic Segment	2281	Level	5119	5.69	0.00	3	70
10		SR 860 ONR	On Ramp	1500	Level	5978	5.41	0.00	3	70
11	SR 860 ONR	US 411/NW 2 AVE OFR	Basic Segment	1683	Level	5978	5.41	0.00	4	70
12		US 441/NW 2 AVE OFR	Off Ramp	1500	Level	5978	5.41	0.00	3	70
13		FL TURNPIKE SB OFR	Off Ramp	1500	Level	5369	5.55	0.00	3	70
14	TRNPKE/SR 826 OFR	SR 7/US 441 ONR	Basic Segment	1315	Level	4301	6.63	0.00	3	70
15		SR 7/US 441 ONR	On Ramp	1500	Level	5519	7.97	0.00	3	70
16	SR 7/US-441 SB ONR	NW 167 ST ONR	Basic Segment	538	Level	5519	7.97	0.00	3	70
17		NW 167 ST ONR	On Ramp	1500	Level	6366	7.82	0.00	3	70
18	NW 167 ST WB ONR	EXP LANES OFR	Basic Segment	592	Level	6366	7.82	0.00	3	70
19		EXP LANES OFR	Off Ramp	593	Level	6366	7.82	0.00	3	70
20	EXP LANES OFR	FL TURNPIKE SB ONR	Basic Segment	185	Level	3765	5.14	0.00	3	70
21		FL TURNPIKE SB ONR	On Ramp	1500	Level	7530	6.49	0.00	3	70
22	FL TURNPIKE ONR	NW 151 ST ONR	Basic Segment	940	Level	7530	6.49	0.00	3	70
23	NW 151 ST ONR	OPALOCKA BLVD OFR	Weaving	3094	Level	8369	6.12	0.00	5	70
24		NW 125 ST OFR	Off Ramp	1500	Level	7405	6.51	0.00	4	70
25	NW 125 ST OFR	NW 135 ST ONR	Basic Segment	3474	Level	5196	8.40	0.00	3	70
26		NW 135 ST ONR	On Ramp	1500	Level	5227	8.37	0.00	4	70
27	NW 135 ST ONR	NW 125 ST ONR	Basic Segment	132	Level	5227	8.37	0.00	4	70
28		NW 125 ST ONR	On Ramp	1500	Level	6083	7.50	0.00	4	70
29	NW 125 ST ONR	NW 119 ST ONR	Basic Segment	1341	Level	6083	7.50	0.00	3	70
30		NW 119 ST ONR	On Ramp	1500	Level	6782	8.10	0.00	4	70
31	NW 119 ST ONR	NW 95 ST OFR	Basic Segment	660	Level	6782	8.10	0.00	4	70
32		NW 95 ST OFR	Off Ramp	1500	Level	6782	8.10	0.00	4	70

RampData

Seg #	Type	Adj. Demand	% Trucks	% RVs	Lanes	Accel/Decel Length	FFS
2	Off Ramp	2163	0.74	0.00	2	1500	50
4	On Ramp	1833	2.73	0.00	1	1180	50
6	Off Ramp	324	5.25	0.00	1	600	50
8	Off Ramp	1123	2.67	0.00	1	460	50
10	On Ramp	859	3.73	0.00	1	350	50
12	Off Ramp	609	4.11	0.00	1	1100	50
13	Off Ramp	1068	1.22	0.00	2	1000	50
15	On Ramp	1218	12.70	0.00	1	340	50
17	On Ramp	847	6.85	0.00	1	220	50
19	Off Ramp	2601	11.70	0.00	2	450	50
21	On Ramp	3765	7.83	0.00	2	1500	50
24	Off Ramp	2209	2.07	0.00	2	790	50
26	On Ramp	31	3.62	0.00	1	700	50
28	On Ramp	856	2.23	0.00	1	470	50
30	On Ramp	699	13.30	0.00	1	330	50
32	Off Ramp	149	4.96	0.00	1	390	50

Weaving Segment Data

Seg #	Ramp to Ramp Prop.	On-Ramp					Off-Ramp				
		Adj. Demand	% Trucks	% RVs	Lanes	FFS	Adj. Demand	% Trucks	% RVs	Lanes	FFS
23	0.050	839	2.82	0.00	1	50	964	3.11	0.00	1	50

Time Period Independent Weaving Segment Data

Seg #	Configuration	Short Length	# Weaving Lanes	Min. Lane Changes Freeway-Ramp	Min. Lane Changes Ramp-Freeway	Min. Lane Changes Ramp-Ramp
23	OneSide	3094	2	1	1	0

Time Period Results

Time Period 1

Seg #	From	To	Type	Adj. Demand	Vol. Served	Capacity (pc/h)	Capacity (veh/h)	d/c Ratio	v/c ratio	Queue Length (ft)	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	Mainline Delay (min/veh)	System Delay (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)	LOS
1	BROWARD COUNTY LINE	IVES DAIRY RD OFR	Basic Segment	6896	6900	9600	9393	0.73	0.73	0	66.3	26.6	26.0	0.25	0.23	0.0	0.0	472.5	472.7	7.1	0.4	D
2		IVES DAIRY RD OFR	Off Ramp	6896	6900	9600	9393	0.73	0.73	0	62.8	28.1	27.5	0.27	0.24	0.0	0.0	489.8	490.1	7.8	0.8	D
3	IVES DAIRY RD OFR	IVES DAIRY RD ONR	Basic Segment	4733	4740	9600	9316	0.51	0.51	0	69.8	17.5	17.0	0.52	0.52	0.0	0.0	718.2	719.3	10.3	0.0	B
4		IVES DAIRY RD ONR	On Ramp	6566	6540	9600	9359	0.70	0.70	0	62.4	26.7	26.0	0.27	0.24	0.0	0.0	466.3	464.5	7.4	0.8	C
5	IVES DAIRY RD ONR	EXP LANES OFR	Basic Segment	6566	6540	9600	9359	0.70	0.70	0	67.4	24.9	24.3	0.41	0.39	0.0	0.0	755.2	752.2	11.2	0.4	C
6		EXP LANES OFR	Off Ramp	6566	6540	7200	7019	0.94	0.93	0	62.7	35.7	34.8	0.27	0.24	0.0	0.0	466.3	464.5	7.4	0.8	E
7	EXP LANES OFR	SR 860 OFR	Basic Segment	6242	6240	9600	9359	0.67	0.67	0	68.1	23.5	22.9	0.13	0.13	0.0	0.0	230.8	230.8	3.4	0.1	C
8		SR 860 OFR	Off Ramp	6242	6240	9600	9359	0.67	0.67	0	64.1	25.0	24.3	0.27	0.24	0.0	0.0	443.3	443.2	6.9	0.6	C
9	SR 860 OFR	SR 860 ONR	Basic Segment	5119	5100	7200	7001	0.73	0.73	0	66.5	26.3	25.6	0.39	0.37	0.0	0.0	552.9	550.8	8.3	0.4	D
10		SR 860 ONR	On Ramp	5978	6000	7200	7010	0.85	0.86	0	58.4	35.0	34.1	0.29	0.24	0.0	0.0	424.6	426.1	7.3	1.2	D
11	SR 860 ONR	US 411/NW 2 AVE OFR	Basic Segment	5978	6000	9600	9347	0.64	0.64	0	68.7	22.4	21.8	0.28	0.27	0.0	0.0	476.4	478.1	7.0	0.1	C
12		US 441/NW 2 AVE OFR	Off Ramp	5978	6000	7200	7010	0.85	0.86	0	62.6	32.8	31.9	0.27	0.24	0.0	0.0	424.6	426.1	6.8	0.7	D
13		FL TURNPIKE SB OFR	Off Ramp	5369	5340	7200	7005	0.77	0.76	0	62.5	29.3	28.5	0.27	0.24	0.0	0.0	381.3	379.3	6.1	0.6	D
14	TRNPKE/SR 826 OFR	SR 7/US 441 ONR	Basic Segment	4301	4320	7200	6969	0.62	0.62	0	69.0	21.5	20.9	0.22	0.21	0.0	0.0	267.8	269.0	3.9	0.1	C
15		SR 7/US 441 ONR	On Ramp	5519	5520	7200	6924	0.80	0.80	0	33.2	57.2	55.0	0.51	0.24	0.3	0.3	392.0	392.0	11.8	6.2	E
16	SR 7/US-441 SB ONR	NW 167 ST ONR	Basic Segment	5519	5520	7200	6924	0.80	0.80	0	62.9	30.4	29.2	0.10	0.09	0.0	0.0	140.6	140.6	2.2	0.2	D
17		NW 167 ST ONR	On Ramp	6366	6360	7200	6929	0.92	0.92	0	20.1	109.2	105.1	0.85	0.24	0.6	0.6	452.1	451.7	22.5	16.1	E
18	NW 167 ST WB ONR	EXP LANES OFR	Basic Segment	6366	6360	7200	6929	0.92	0.92	0	58.3	37.8	36.3	0.12	0.10	0.0	0.0	178.4	178.3	3.1	0.5	E
19		EXP LANES OFR	Off Ramp	6366	6360	7200	6929	0.92	0.92	0	57.9	38.0	36.6	0.12	0.10	0.0	0.0	178.7	178.6	3.1	0.5	E
20	EXP LANES OFR	FL TURNPIKE SB ONR	Basic Segment	3765	3780	7200	7020	0.54	0.54	0	63.6	20.3	19.8	0.03	0.03	0.0	0.0	33.0	33.1	0.5	0.0	C
21		FL TURNPIKE SB ONR	On Ramp	7530	5880	7200	6974	1.08	0.84	0	50.0	39.6	38.4	0.34	0.24	0.1	6.0	534.8	417.6	8.4	2.4	F
22	FL TURNPIKE ONR	NW 151 ST ONR	Basic Segment	7530	5880	7200	6974	1.08	0.84	0	62.1	32.6	31.5	0.17	0.15	0.0	0.0	335.1	261.7	4.2	0.5	F
23	NW 151 ST ONR	OPALOCKA BLVD OFR	Weaving	8369	6720	11441	11101	0.75	0.61	0	57.1	10.1	9.8	0.62	0.50	0.1	0.1	1226.0	984.5	17.2	3.2	B
24		NW 125 ST OFR	Off Ramp	7405	5940	9600	9297	0.80	0.64	0	62.4	24.6	23.8	0.27	0.24	0.0	0.0	525.9	421.9	6.8	0.7	C
25	NW 125 ST OFR	NW 135 ST ONR	Basic Segment	5196	4140	7200	6910	0.75	0.60	0	69.3	20.7	19.9	0.57	0.56	0.0	0.0	854.7	681.0	9.8	0.1	C
26		NW 135 ST ONR	On Ramp	5227	4200	9600	9214	0.57	0.46	0	65.1	16.8	16.1	0.26	0.24	0.0	0.0	371.2	298.3	4.6	0.3	B
27	NW 135 ST ONR	NW 125 ST ONR	Basic Segment	5227	4200	9600	9214	0.57	0.46	0	68.7	15.9	15.3	0.02	0.02	0.0	0.0	32.7	26.3	0.4	0.0	B
28		NW 125 ST ONR	On Ramp	6083	5040	9600	9253	0.66	0.54	0	63.8	20.4	19.6	0.27	0.24	0.0	0.0	432.0	358.0	5.6	0.5	C
29	NW 125 ST ONR	NW 119 ST ONR	Basic Segment	6083	5040	7200	6940	0.88	0.73	0	66.6	26.2	25.2	0.23	0.22	0.0	0.0	386.2	320.0	4.8	0.2	D
30		NW 119 ST ONR	On Ramp	6782	5760	9600	9226	0.74	0.62	0	63.1	23.6	22.7	0.27	0.24	0.0	0.0	481.7	409.1	6.5	0.6	C
31	NW 119 ST ONR	NW 95 ST OFR	Basic Segment	6782	5760	9600	9226	0.74	0.62	0	68.8	21.8	20.9	0.11	0.11	0.0	0.0	211.9	180.0	2.6	0.0	C
32		NW 95 ST OFR	Off Ramp	6782	5760	9600	9226	0.74	0.62	0	66.8	22.4	21.6	0.26	0.24	0.0	0.0	481.7	409.1	6.1	0.3	C

Overall Results

Segment	Segment Type	Maximum d/c Ratio	Avg. Speed (mi/h)	Density (pc/mi/ln)	Density (veh/mi/ln)	Avg. Travel Time (min/veh)	Free-Flow Travel Time (min/veh)	VMT Demand (veh-min)	VMT Volume (veh-min)	VHT (veh-hrs)	VHD (veh-hrs)
BROWARD COUNTY LINE-IVES DAIRY RD OFR	Basic	0.73	66.3	26.6	26.0	0.25	0.23	0,472.5	0,472.7	7.13	0.37
-IVES DAIRY RD OFR	OffRamp	0.73	62.8	28.1	27.5	0.27	0.24	0,489.8	0,490.1	7.81	0.80
IVES DAIRY RD OFR-IVES DAIRY RD ONR	Basic	0.51	69.8	17.5	17.0	0.52	0.52	0,718.2	0,719.3	10.30	0.02
-IVES DAIRY RD	OnRamp	0.70	62.4	26.7	26.0	0.27	0.24	0,466.3	0,464.5	7.44	0.81

ONR											
IVES DAIRY RD ONR-EXP LANES OFR	Basic	0.70	67.4	24.9	24.3	0.41	0.39	0,755.2	0,752.2	11.17	0.42
-EXP LANES OFR	OffRamp	0.94	62.7	35.7	34.8	0.27	0.24	0,466.3	0,464.5	7.41	0.77
EXP LANES OFR-SR 860 OFR	Basic	0.67	68.1	23.5	22.9	0.13	0.13	0,230.8	0,230.8	3.39	0.09
-SR 860 OFR	OffRamp	0.67	64.1	25.0	24.3	0.27	0.24	0,443.3	0,443.2	6.92	0.58
SR 860 OFR-SR 860 ONR	Basic	0.73	66.5	26.3	25.6	0.39	0.37	0,552.9	0,550.8	8.28	0.41
-SR 860 ONR	OnRamp	0.85	58.4	35.0	34.1	0.29	0.24	0,424.6	0,426.1	7.29	1.20
SR 860 ONR-US 411/NW 2 AVE OFR	Basic	0.64	68.7	22.4	21.8	0.28	0.27	0,476.4	0,478.1	6.96	0.13
-US 441/NW 2 AVE OFR	OffRamp	0.85	62.6	32.8	31.9	0.27	0.24	0,424.6	0,426.1	6.80	0.72
-FL TURNPIKE SB OFR	OffRamp	0.77	62.5	29.3	28.5	0.27	0.24	0,381.3	0,379.3	6.07	0.65
TRNPKE/SR 826 OFR-SR 7/US 441 ONR	Basic	0.62	69.0	21.5	20.9	0.22	0.21	0,267.8	0,269.0	3.90	0.05
-SR 7/US 441 ONR	OnRamp	0.80	33.2	57.2	55.0	0.51	0.24	0,392.0	0,392.0	11.82	6.22
SR 7/US-441 SB ONR-NW 167 ST ONR	Basic	0.80	62.9	30.4	29.2	0.10	0.09	0,140.6	0,140.6	2.23	0.23
-NW 167 ST ONR	OnRamp	0.92	20.1	109.2	105.1	0.85	0.24	0,452.1	0,451.7	22.51	16.05
NW 167 ST WB ONR-EXP LANES OFR	Basic	0.92	58.3	37.8	36.3	0.12	0.10	0,178.4	0,178.3	3.06	0.51
-EXP LANES OFR	OffRamp	0.92	57.9	38.0	36.6	0.12	0.10	0,178.7	0,178.6	3.08	0.53
EXP LANES OFR-FL TURNPIKE SB ONR	Basic	0.54	63.6	20.3	19.8	0.03	0.03	0,033.0	0,033.1	0.52	0.05
-FL TURNPIKE SB ONR	OnRamp	1.08	50.0	39.6	38.4	0.34	0.24	0,534.8	0,417.6	8.35	2.39
FL TURNPIKE ONR-NW 151 ST ONR	Basic	1.08	62.1	32.6	31.5	0.17	0.15	0,335.1	0,261.7	4.21	0.47
NW 151 ST ONR-OPALOCKA BLVD OFR	Weaving	0.75	57.1	10.1	9.8	0.62	0.50	1,226.0	0,984.5	17.23	3.16
-NW 125 ST OFR	OffRamp	0.80	62.4	24.6	23.8	0.27	0.24	0,525.9	0,421.9	6.76	0.74
NW 125 ST OFR-NW 135 ST ONR	Basic	0.75	69.3	20.7	19.9	0.57	0.56	0,854.7	0,681.0	9.82	0.09
-NW 135 ST ONR	OnRamp	0.57	65.1	16.8	16.1	0.26	0.24	0,371.2	0,298.3	4.58	0.32
NW 135 ST ONR-NW 125 ST ONR	Basic	0.57	68.7	15.9	15.3	0.02	0.02	0,032.7	0,026.3	0.38	0.01
-NW 125 ST ONR	OnRamp	0.66	63.8	20.4	19.6	0.27	0.24	0,432.0	0,358.0	5.61	0.49
NW 125 ST ONR-NW 119 ST ONR	Basic	0.88	66.6	26.2	25.2	0.23	0.22	0,386.2	0,320.0	4.81	0.23
-NW 119 ST ONR	OnRamp	0.74	63.1	23.6	22.7	0.27	0.24	0,481.7	0,409.1	6.48	0.64
NW 119 ST ONR-NW 95 ST OFR	Basic	0.74	68.8	21.8	20.9	0.11	0.11	0,211.9	0,180.0	2.62	0.04
-NW 95 ST OFR	OffRamp	0.74	66.8	22.4	21.6	0.26	0.24	0,481.7	0,409.1	6.13	0.28
Freeway			57.5	27.0	26.1	9.22	7.66	13,818.8	12,708.3	0,221.1	0,039.5

Density-Based LOS by Segment															
Segment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time Step	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Off Ramp	Off Ramp	Basic	On Ramp
1	D	D	B	C	C	E	C	C	D	D	C	D	D	C	E

Density-Based LOS by Segment															
Segment	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Time Step	Basic	On Ramp	Basic	Off Ramp	Basic	On Ramp	Basic	Weaving	Off Ramp	Basic	On Ramp	Basic	On Ramp	Basic	On Ramp
1	D	E	E	E	C	E	D	B	C	C	B	B	C	D	C

Density-Based LOS by Segment		
Segment	31	32
Time Step	Basic	Off Ramp
1	C	C

Demand-Based LOS by Segment															
Time Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Demand-Based LOS by Segment															
Time Step	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	.	.	.	.	.	F	F	.	.	.	.	.	.	.	.

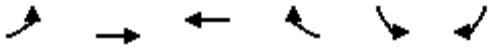
Demand-Based LOS by Segment		
Time Step	31	32
1	.	.

Appendix B
Synchro Intersection Analyses

Part 1
AM Peak Period

HCM 2010 Signalized Intersection Summary
101: US 1/SR 5 & SW 16th Ave

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	117	3701	2797	59	637	207
Future Volume (veh/h)	117	3701	2797	59	637	207
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	122	3855	2914	0	664	216
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	157	3752	3352	0	403	360
Arrive On Green	0.06	0.73	0.65	0.00	0.22	0.22
Sat Flow, veh/h	1792	5305	5474	0	1792	1599
Grp Volume(v), veh/h	122	3855	2914	0	664	216
Grp Sat Flow(s),veh/h/ln	1792	1712	1712	0	1792	1599
Q Serve(g_s), s	6.3	131.5	82.0	0.0	40.5	21.8
Cycle Q Clear(g_c), s	6.3	131.5	82.0	0.0	40.5	21.8
Prop In Lane	1.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	157	3752	3352	0	403	360
V/C Ratio(X)	0.78	1.03	0.87	0.00	1.65	0.60
Avail Cap(c_a), veh/h	157	3752	3352	0	403	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	24.2	25.1	0.0	69.7	62.5
Incr Delay (d2), s/veh	19.9	22.3	3.4	0.0	302.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.1	124.6	50.0	0.0	97.0	26.6
LnGrp Delay(d),s/veh	75.5	46.6	28.5	0.0	371.9	64.9
LnGrp LOS	E	F	C		F	E
Approach Vol, veh/h		3977	2914		880	
Approach Delay, s/veh		47.4	28.5		296.6	
Approach LOS		D	C		F	

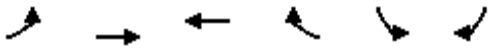
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		135.5		44.5	14.0	121.5		
Change Period (Y+Rc), s		6.8		6.4	6.8	6.8		
Max Green Setting (Gmax), s		128.7		38.1	7.2	114.7		
Max Q Clear Time (g_c+I1), s		133.5		42.5	8.3	84.0		
Green Ext Time (p_c), s		0.0		0.0	0.0	26.3		

Intersection Summary	
HCM 2010 Ctrl Delay	68.5
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

HCM Unsignalized Intersection Capacity Analysis
201: SW 26th Rd & SB Off-Ramp



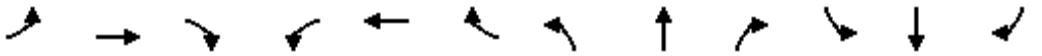
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	732	0	0	1622	265
Future Volume (Veh/h)	0	732	0	0	1622	265
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	787	0	0	1744	285
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)					338	
pX, platoon unblocked						
vC, conflicting volume	3630	3630	3488	0	0	
vC1, stage 1 conf vol	3630	3630	0			
vC2, stage 2 conf vol	0	0	3488			
vCu, unblocked vol	3630	3630	3488	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)	6.1	5.5	5.5			
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	0	0	0	100	0	
cM capacity (veh/h)	0	0	0	1082	1617	

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	SB 3
Volume Total	394	394	698	698	634
Volume Left	0	0	698	698	349
Volume Right	0	0	0	0	285
cSH	0	0	1617	1617	1617
Volume to Capacity	Err	Err	1.08	1.08	1.08
Queue Length 95th (ft)	Err	Err	869	869	869
Control Delay (s)	Err	Err	62.3	62.3	62.3
Lane LOS	F	F	F	F	F
Approach Delay (s)	Err		62.3		
Approach LOS	F				

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
202: SW 26th Rd & NB On-Ramp

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	511	1701	142	0	0	142	0	0	93	0	0	0
Future Volume (Veh/h)	511	1701	142	0	0	142	0	0	93	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	562	1869	156	0	0	156	0	0	102	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					410							
pX, platoon unblocked												
vC, conflicting volume	0			2025			3149	3071	545	1693	3149	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			2025			3149	3071	545	1693	3149	0
tC, single (s)	4.2			4.2			7.6	6.6	7.0	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	65			100			100	100	79	100	100	100
cM capacity (veh/h)	1614			273			3	8	480	34	7	1081

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	NB 1
Volume Total	874	623	623	468	156	102
Volume Left	562	0	0	0	0	0
Volume Right	0	0	0	156	156	102
cSH	1614	1700	1700	1700	1700	480
Volume to Capacity	0.35	0.37	0.37	0.28	0.09	0.21
Queue Length 95th (ft)	40	0	0	0	0	20
Control Delay (s)	6.7	0.0	0.0	0.0	0.0	14.5
Lane LOS	A					B
Approach Delay (s)	2.3				0.0	14.5
Approach LOS						B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	50.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM 2010 Signalized Intersection Summary
203: S Miami Ave & SW 26th Rd

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1154	603	18	12	44	117	332	1	47	274	13
Future Volume (veh/h)	36	1154	603	18	12	44	117	332	1	47	274	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	38	1215	0	19	13	0	123	349	0	49	288	0
Adj No. of Lanes	1	3	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	459	1452	440	110	520	442	657	1913	0	610	1847	0
Arrive On Green	0.02	0.29	0.00	0.02	0.28	0.00	0.06	0.72	0.00	0.03	0.69	0.00
Sat Flow, veh/h	1774	5085	1583	1774	1863	1583	1774	3632	0	1774	3632	0
Grp Volume(v), veh/h	38	1215	0	19	13	0	123	349	0	49	288	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1863	1583	1774	1770	0	1774	1770	0
Q Serve(g_s), s	1.9	26.9	0.0	0.9	0.6	0.0	4.1	3.8	0.0	1.6	3.3	0.0
Cycle Q Clear(g_c), s	1.9	26.9	0.0	0.9	0.6	0.0	4.1	3.8	0.0	1.6	3.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	459	1452	440	110	520	442	657	1913	0	610	1847	0
V/C Ratio(X)	0.08	0.84	0.00	0.17	0.02	0.00	0.19	0.18	0.00	0.08	0.16	0.00
Avail Cap(c_a), veh/h	480	1610	490	222	674	573	1052	1913	0	640	1847	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	0.99	0.99	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.3	40.2	0.0	34.2	31.4	0.0	12.9	8.3	0.0	13.5	9.3	0.0
Incr Delay (d2), s/veh	0.1	3.6	0.0	0.7	0.0	0.0	0.1	0.2	0.0	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	19.0	0.0	0.9	0.6	0.0	3.6	3.4	0.0	1.4	3.0	0.0
LnGrp Delay(d),s/veh	31.4	43.8	0.0	34.9	31.4	0.0	13.0	8.5	0.0	13.6	9.5	0.0
LnGrp LOS	C	D		C	C		B	A		B	A	
Approach Vol, veh/h		1253			32			472			337	
Approach Delay, s/veh		43.4			33.5			9.7			10.1	
Approach LOS		D			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	68.9	5.8	38.3	9.3	66.6	6.6	37.5
Change Period (Y+Rc), s	3.0	5.0	3.5	* 4.9	3.0	5.0	3.0	* 4.9
Max Green Setting (Gmax), s	6.0	50.6	9.9	* 37	33.0	23.6	5.0	* 43
Max Q Clear Time (g_c+I1), s	3.6	5.8	2.9	28.9	6.1	5.3	3.9	2.6
Green Ext Time (p_c), s	0.0	2.1	0.0	4.5	0.3	1.4	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
204: Brickell Ave & SW 26th Rd/Rickenbacker Causeway

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	992	108	0	73	312	0	822	722	42	768	1
Future Volume (veh/h)	102	992	108	0	73	312	0	822	722	42	768	1
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1863	0	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	112	1090	0	0	80	0	0	903	793	46	844	0
Adj No. of Lanes	1	4	1	0	2	1	0	2	1	2	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	0	2	2	0	2	2	2	2	2
Cap, veh/h	349	1604	396	0	470	173	0	2125	916	170	2417	0
Arrive On Green	0.08	0.25	0.00	0.00	0.13	0.00	0.00	0.80	0.77	0.07	0.91	0.00
Sat Flow, veh/h	1774	6408	1583	0	3632	1583	0	3632	1583	3442	3632	0
Grp Volume(v), veh/h	112	1090	0	0	80	0	0	903	793	46	844	0
Grp Sat Flow(s),veh/h/ln	1774	1602	1583	0	1770	1583	0	1770	1583	1721	1770	0
Q Serve(g_s), s	6.3	18.4	0.0	0.0	2.4	0.0	0.0	9.3	41.5	1.5	3.8	0.0
Cycle Q Clear(g_c), s	6.3	18.4	0.0	0.0	2.4	0.0	0.0	9.3	41.5	1.5	3.8	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	349	1604	396	0	470	173	0	2125	916	170	2417	0
V/C Ratio(X)	0.32	0.68	0.00	0.00	0.17	0.00	0.00	0.43	0.87	0.27	0.35	0.00
Avail Cap(c_a), veh/h	436	2350	581	0	708	280	0	2125	916	229	2417	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.4	40.6	0.0	0.0	46.2	0.0	0.0	5.8	10.6	54.0	1.9	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.6	10.7	0.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.3	11.9	0.0	0.0	2.1	0.0	0.0	8.1	27.8	1.3	3.4	0.0
LnGrp Delay(d),s/veh	38.5	40.9	0.0	0.0	46.3	0.0	0.0	6.4	21.3	54.3	2.3	0.0
LnGrp LOS	D	D			D			A	C	D	A	
Approach Vol, veh/h		1202			80			1696			890	
Approach Delay, s/veh		40.6			46.3			13.4			5.0	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	9.9	76.0		34.0		86.0	14.1	19.9
Change Period (Y+Rc), s	6.0	6.6		* 6.8		6.6	6.0	* 6.8
Max Green Setting (Gmax), s	6.0	53.4		* 41		65.4	14.0	* 21
Max Q Clear Time (g_c+I1), s	3.5	43.5		20.4		5.8	8.3	4.4
Green Ext Time (p_c), s	0.0	2.6		6.8		2.5	0.1	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
205: SB Off-Ramp & SW 25th Rd

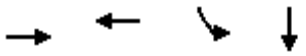
2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	673	29	6	222	0	0	0	0	373	1853	276
Future Volume (vph)	0	673	29	6	222	0	0	0	0	373	1853	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	
Lane Util. Factor		*0.53			0.95					1.00	0.91	
Frt		0.99			1.00					1.00	0.98	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1962			3535					1770	4986	
Flt Permitted		1.00			0.70					0.95	1.00	
Satd. Flow (perm)		1962			2475					1770	4986	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	701	30	6	231	0	0	0	0	389	1930	288
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	729	0	0	237	0	0	0	0	389	2202	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		56.5			15.8					54.0	54.0	
Effective Green, g (s)		57.0			16.3					55.0	55.0	
Actuated g/C Ratio		0.48			0.14					0.46	0.46	
Clearance Time (s)		4.5			4.5					5.0	5.0	
Vehicle Extension (s)		2.5			2.5					1.0	1.0	
Lane Grp Cap (vph)		931			336					811	2285	
v/s Ratio Prot		c0.37									c0.44	
v/s Ratio Perm					0.10					0.22		
v/c Ratio		0.78			0.71					0.48	0.96	
Uniform Delay, d1		26.3			49.6					22.6	31.5	
Progression Factor		1.00			0.28					1.00	1.00	
Incremental Delay, d2		4.2			5.9					2.0	12.0	
Delay (s)		30.6			20.1					24.6	43.5	
Level of Service		C			C					C	D	
Approach Delay (s)		30.6			20.1			0.0			40.7	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues
205: SB Off-Ramp & SW 25th Rd



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	731	237	389	2218
v/c Ratio	0.78	0.71	0.48	0.96
Control Delay	33.5	25.3	25.1	43.4
Queue Delay	0.7	0.0	2.5	0.0
Total Delay	34.2	25.3	27.6	43.4
Queue Length 50th (ft)	433	35	204	590
Queue Length 95th (ft)	591	51	294	#720
Internal Link Dist (ft)	411	125		410
Turn Bay Length (ft)				
Base Capacity (vph)	934	927	811	2302
Starvation Cap Reductn	0	26	0	0
Spillback Cap Reductn	48	0	296	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.83	0.26	0.76	0.96

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
206: NB On-Ramp & SW 25th Rd

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	456	0	0	153	834	74	538	41	0	0	0
Future Volume (vph)	589	456	0	0	153	834	74	538	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	3.5		4.0				
Lane Util. Factor	0.95	0.95			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1715	1805			1900	1615		3556				
Flt Permitted	0.44	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	789	1805			1900	1615		3556				
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	647	501	0	0	168	916	81	591	45	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	647	501	0	0	168	916	0	713	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA			NA	Free	Split	NA				
Protected Phases	3	8			4		6	6				
Permitted Phases	8					Free						
Actuated Green, G (s)	57.5	57.5			15.8	120.0		54.0				
Effective Green, g (s)	57.0	58.0			16.3	120.0		55.0				
Actuated g/C Ratio	0.48	0.48			0.14	1.00		0.46				
Clearance Time (s)	3.5	4.5			4.5			5.0				
Vehicle Extension (s)	2.0	2.5			2.5			1.0				
Lane Grp Cap (vph)	657	872			258	1615		1629				
v/s Ratio Prot	c0.30	0.18			0.09			0.20				
v/s Ratio Perm	c0.17	0.10				c0.57						
v/c Ratio	0.98	0.57			0.65	0.57		0.44				
Uniform Delay, d1	32.9	22.2			49.2	0.0		22.0				
Progression Factor	0.87	0.80			1.00	1.00		0.85				
Incremental Delay, d2	26.7	0.6			5.2	1.4		0.7				
Delay (s)	55.2	18.4			54.3	1.4		19.5				
Level of Service	E	B			D	A		B				
Approach Delay (s)		39.1			9.6			19.5			0.0	
Approach LOS		D			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
206: NB On-Ramp & SW 25th Rd

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	647	501	168	916	717
v/c Ratio	0.98	0.58	0.65	0.57	0.44
Control Delay	59.3	21.1	60.4	1.4	19.4
Queue Delay	39.0	28.5	0.0	0.0	0.0
Total Delay	98.3	49.6	60.4	1.4	19.4
Queue Length 50th (ft)	382	201	125	0	121
Queue Length 95th (ft)	#822	307	188	0	m147
Internal Link Dist (ft)		125	258		245
Turn Bay Length (ft)					
Base Capacity (vph)	657	857	712	1615	1634
Starvation Cap Reductn	168	369	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.32	1.03	0.24	0.57	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
301: SW 5th Ave & SW 8th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	1584	394	0	0	0	0	219	566	0	0	0
Future Volume (veh/h)	237	1584	394	0	0	0	0	219	566	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	247	1650	410				0	228	590			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	261	1518	374				0	226	586			
Arrive On Green	0.59	0.59	0.57				0.00	0.49	0.47			
Sat Flow, veh/h	503	3437	847				0	461	1192			
Grp Volume(v), veh/h	835	724	748				0	0	818			
Grp Sat Flow(s),veh/h/ln	1699	1543	1546				0	0	1652			
Q Serve(g_s), s	53.0	53.0	53.0				0.0	0.0	59.0			
Cycle Q Clear(g_c), s	53.0	53.0	53.0				0.0	0.0	59.0			
Prop In Lane	0.30		0.55				0.00		0.72			
Lane Grp Cap(c), veh/h	789	681	683				0	0	812			
V/C Ratio(X)	1.06	1.06	1.10				0.00	0.00	1.01			
Avail Cap(c_a), veh/h	789	681	683				0	0	812			
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	26.1	24.8	25.5				0.0	0.0	31.2			
Incr Delay (d2), s/veh	48.2	52.5	63.6				0.0	0.0	33.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	65.9	57.9	61.8				0.0	0.0	61.9			
LnGrp Delay(d),s/veh	74.3	77.3	89.1				0.0	0.0	64.5			
LnGrp LOS	F	F	F						F			
Approach Vol, veh/h		2307						818				
Approach Delay, s/veh		80.0						64.5				
Approach LOS		F						E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				63.0		57.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				57.0		51.0		
Max Q Clear Time (g_c+I1), s				61.0		55.0		
Green Ext Time (p_c), s				0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	76.0
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
302: SW 4th Ave & SW 8th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2297	74	0	0	0	0	0	0	1470	245	0
Future Volume (veh/h)	0	2297	74	0	0	0	0	0	0	1470	245	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1900							1845	1845	0
Adj Flow Rate, veh/h	0	2368	76							1515	253	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.97	0.97	0.97							0.97	0.97	0.97
Percent Heavy Veh, %	0	3	3							3	3	0
Cap, veh/h	0	4709	151							0	309	0
Arrive On Green	0.00	1.00	0.99							0.17	0.17	0.00
Sat Flow, veh/h	0	6483	197							0	1845	0
Grp Volume(v), veh/h	0	1747	697							0	253	0
Grp Sat Flow(s),veh/h/ln	0	1513	1810							0	1845	0
Q Serve(g_s), s	0.0	0.0	0.1							0.0	15.9	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.1							0.0	15.9	0.0
Prop In Lane	0.00		0.11							0.00		0.00
Lane Grp Cap(c), veh/h	0	3475	1386							0	309	0
V/C Ratio(X)	0.00	0.50	0.50							0.00	0.82	0.00
Avail Cap(c_a), veh/h	0	3475	1386							0	338	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							0.00	0.70	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0							0.0	48.2	0.0
Incr Delay (d2), s/veh	0.0	0.5	1.3							0.0	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.3	1.0							0.0	13.0	0.0
LnGrp Delay(d),s/veh	0.0	0.5	1.3							0.0	57.6	0.0
LnGrp LOS		A	A								E	
Approach Vol, veh/h		2444									253	
Approach Delay, s/veh		0.8									57.6	
Approach LOS		A									E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		95.9		24.1				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 87		20.0				
Max Q Clear Time (g_c+I1), s		2.1		17.9				
Green Ext Time (p_c), s		24.9		0.2				

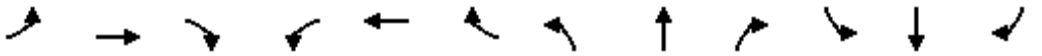
Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

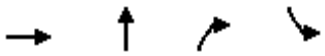
HCM Signalized Intersection Capacity Analysis
304: SW 3rd Ave & SW 8th St

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2802	0	0	0	0	0	183	385	13	0	0
Future Volume (vph)	17	2802	0	0	0	0	0	183	385	13	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0	4.0	4.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		5034						1845	1568	1752		
Flt Permitted		1.00						1.00	1.00	0.43		
Satd. Flow (perm)		5034						1845	1568	792		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	18	2919	0	0	0	0	0	191	401	14	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	22	0	0	0
Lane Group Flow (vph)	0	2937	0	0	0	0	0	191	379	14	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		87.0						21.0	21.0	21.0		
Effective Green, g (s)		89.0						23.0	23.0	23.0		
Actuated g/C Ratio		0.74						0.19	0.19	0.19		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		3733						353	300	151		
v/s Ratio Prot								0.10				
v/s Ratio Perm		0.58							c0.24	0.02		
v/c Ratio		0.79						0.54	1.26	0.09		
Uniform Delay, d1		9.6						43.7	48.5	39.9		
Progression Factor		1.46						1.00	1.00	0.95		
Incremental Delay, d2		1.2						1.3	142.7	0.2		
Delay (s)		15.2						45.1	191.2	38.1		
Level of Service		B						D	F	D		
Approach Delay (s)		15.2			0.0			144.0			38.1	
Approach LOS		B			A			F			D	

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	NBT	NBR	SBL
Lane Group Flow (vph)	2937	191	401	14
v/c Ratio	0.79	0.54	1.25	0.09
Control Delay	15.6	50.2	172.0	39.8
Queue Delay	0.3	0.0	0.0	0.0
Total Delay	15.9	50.2	172.0	39.8
Queue Length 50th (ft)	711	135	~371	7
Queue Length 95th (ft)	m716	212	#571	21
Internal Link Dist (ft)	147	240		
Turn Bay Length (ft)				55
Base Capacity (vph)	3735	353	322	151
Starvation Cap Reductn	275	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.85	0.54	1.25	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
305: SW 2nd Ave & SW 8th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	769	1765	336	0	0	0	0	601	31	429	317	0
Future Volume (veh/h)	769	1765	336	0	0	0	0	601	31	429	317	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	854	1961	373				0	668	34	414	439	0
Adj No. of Lanes	0	4	0				0	3	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	3	0				0	3	3	3	3	0
Cap, veh/h	826	2103	392				0	780	40	432	482	0
Arrive On Green	0.50	0.50	0.50				0.00	0.21	0.19	0.33	0.35	0.00
Sat Flow, veh/h	1653	4205	783				0	5075	249	1757	1845	0
Grp Volume(v), veh/h	911	1465	813				0	456	246	414	439	0
Grp Sat Flow(s),veh/h/ln	1762	1586	1706				0	1679	1801	1757	1845	0
Q Serve(g_s), s	75.0	64.3	68.2				0.0	19.6	19.8	34.7	34.1	0.0
Cycle Q Clear(g_c), s	75.0	64.3	68.2				0.0	19.6	19.8	34.7	34.1	0.0
Prop In Lane	0.94		0.46				0.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	881	1586	853				0	533	286	432	482	0
V/C Ratio(X)	1.03	0.92	0.95				0.00	0.85	0.86	0.96	0.91	0.00
Avail Cap(c_a), veh/h	881	1586	853				0	533	286	442	492	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	0.43	0.43	0.43				0.00	1.00	1.00	0.45	0.45	0.00
Uniform Delay (d), s/veh	37.5	34.8	35.8				0.0	57.5	57.8	49.7	47.3	0.0
Incr Delay (d2), s/veh	29.2	4.5	11.0				0.0	16.0	27.1	19.2	11.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	78.5	34.9	41.0				0.0	15.5	17.6	23.9	23.6	0.0
LnGrp Delay(d),s/veh	66.7	39.3	46.8				0.0	73.4	84.8	68.9	58.3	0.0
LnGrp LOS	F	D	D					E	F	E	E	
Approach Vol, veh/h		3188						702			853	
Approach Delay, s/veh		49.0						77.4			63.4	
Approach LOS		D						E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		27.8		79.0		43.2		
Change Period (Y+Rc), s		* 6.3		* 6.3		6.3		
Max Green Setting (Gmax), s		* 21		* 73		37.7		
Max Q Clear Time (g_c+I1), s		21.8		77.0		36.7		
Green Ext Time (p_c), s		0.0		0.0		0.2		

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
306: SW 4th Ave & SW 7th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	WBL	WBT	SBT	SWL	SWR
Lane Configurations					
Traffic Volume (vph)	205	287	550	960	765
Future Volume (vph)	205	287	550	960	765
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	0.95	0.97	0.91
Frt	1.00	1.00	1.00	0.99	0.85
Flt Protected	0.95	0.99	1.00	0.96	1.00
Satd. Flow (prot)	1595	3321	3505	3382	1427
Flt Permitted	0.95	0.99	1.00	0.96	1.00
Satd. Flow (perm)	1595	3321	3505	3382	1427
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	218	305	585	1021	814
RTOR Reduction (vph)	88	88	0	0	0
Lane Group Flow (vph)	45	302	585	1102	733
Heavy Vehicles (%)	3%	3%	3%	3%	3%
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	4	3	
Permitted Phases	2				3
Actuated Green, G (s)	14.4	14.4	19.2	65.7	65.7
Effective Green, g (s)	16.9	16.9	22.4	68.7	68.7
Actuated g/C Ratio	0.14	0.14	0.19	0.57	0.57
Clearance Time (s)	6.5	6.5	7.2	7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5	3.0	3.0
Lane Grp Cap (vph)	224	467	654	1936	816
v/s Ratio Prot			c0.17	0.33	
v/s Ratio Perm	0.03	0.09			c0.51
v/c Ratio	0.20	0.65	0.89	0.57	0.90
Uniform Delay, d1	45.6	48.7	47.6	16.3	22.6
Progression Factor	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	6.8	14.7	0.4	12.6
Delay (s)	47.6	55.5	62.3	16.7	35.2
Level of Service	D	E	E	B	D
Approach Delay (s)		53.5	62.3	24.0	
Approach LOS		D	E	C	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
306: SW 4th Ave & SW 7th St

Lane Group	WBL	WBT	SBT	SWL	SWR
Lane Group Flow (vph)	133	390	585	1102	733
v/c Ratio	0.43	0.70	0.90	0.57	0.90
Control Delay	17.9	42.9	66.0	17.6	38.2
Queue Delay	0.1	0.1	1.6	50.5	0.0
Total Delay	18.1	42.9	67.6	68.2	38.2
Queue Length 50th (ft)	23	118	~261	244	480
Queue Length 95th (ft)	84	167	#377	337	#849
Internal Link Dist (ft)		228	266	601	
Turn Bay Length (ft)					
Base Capacity (vph)	413	772	653	1940	818
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	32	21	16	1049	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.52	0.92	1.24	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
307: SW 3rd Ave & SW 7th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	371	30	121	80	0	0	0	0
Future Volume (veh/h)	0	0	0	13	371	30	121	80	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1900	1881	1900	1881	1881	0			
Adj Flow Rate, veh/h				14	403	33	132	87	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %				1	1	1	1	1	0			
Cap, veh/h				133	3754	302	256	206	0			
Arrive On Green				1.00	1.00	1.00	0.11	0.11	0.00			
Sat Flow, veh/h				122	4557	367	1792	1881	0			
Grp Volume(v), veh/h				164	137	148	132	87	0			
Grp Sat Flow(s),veh/h/ln				1841	1558	1647	1792	1881	0			
Q Serve(g_s), s				0.0	0.0	0.0	8.5	5.2	0.0			
Cycle Q Clear(g_c), s				0.0	0.0	0.0	8.5	5.2	0.0			
Prop In Lane				0.09		0.22	1.00		0.00			
Lane Grp Cap(c), veh/h				1550	1283	1357	256	206	0			
V/C Ratio(X)				0.11	0.11	0.11	0.52	0.42	0.00			
Avail Cap(c_a), veh/h				1550	1283	1357	1105	1097	0			
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)				1.00	1.00	1.00	0.82	0.82	0.00			
Uniform Delay (d), s/veh				0.0	0.0	0.0	51.4	49.9	0.0			
Incr Delay (d2), s/veh				0.1	0.2	0.2	1.0	0.8	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				0.1	0.1	0.1	7.4	5.0	0.0			
LnGrp Delay(d),s/veh				0.1	0.2	0.2	52.3	50.7	0.0			
LnGrp LOS				A	A	A	D	D				
Approach Vol, veh/h					450			219				
Approach Delay, s/veh					0.2			51.7				
Approach LOS					A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		102.9		17.1				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		40.0		68.0				
Max Q Clear Time (g_c+I1), s		2.0		10.5				
Green Ext Time (p_c), s		0.9		0.6				

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
308: SW 2nd Ave & SW 7th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	91	755	37	529	842	0	0	655	153
Future Volume (veh/h)	0	0	0	91	755	37	529	842	0	0	655	153
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1863	1863	0	0	1863	1900
Adj Flow Rate, veh/h				100	830	41	581	925	0	0	720	168
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				215	1910	97	449	1878	0	0	824	192
Arrive On Green				0.55	0.55	0.53	0.21	0.53	0.00	0.00	0.29	0.27
Sat Flow, veh/h				519	4601	233	1774	3632	0	0	2943	665
Grp Volume(v), veh/h				354	297	320	581	925	0	0	447	441
Grp Sat Flow(s),veh/h/ln				1837	1695	1822	1774	1770	0	0	1770	1745
Q Serve(g_s), s				13.9	12.3	12.4	25.0	19.9	0.0	0.0	28.8	28.9
Cycle Q Clear(g_c), s				13.9	12.3	12.4	25.0	19.9	0.0	0.0	28.8	28.9
Prop In Lane				0.28		0.13	1.00		0.00	0.00		0.38
Lane Grp Cap(c), veh/h				762	704	756	449	1878	0	0	512	505
V/C Ratio(X)				0.46	0.42	0.42	1.29	0.49	0.00	0.00	0.87	0.87
Avail Cap(c_a), veh/h				762	704	756	449	2153	0	0	649	640
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.28	0.28	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				18.8	18.5	18.6	34.5	17.9	0.0	0.0	40.6	41.0
Incr Delay (d2), s/veh				0.4	0.4	0.4	136.7	0.0	0.0	0.0	9.0	9.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.4	9.8	10.4	57.4	12.5	0.0	0.0	21.7	21.5
LnGrp Delay(d),s/veh				19.3	18.9	19.0	171.2	17.9	0.0	0.0	49.6	50.1
LnGrp LOS				B	B	B	F	B			D	D
Approach Vol, veh/h					971			1506			888	
Approach Delay, s/veh					19.1			77.0			49.8	
Approach LOS					B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		52.3		67.7			29.0	38.7
Change Period (Y+Rc), s		4.5		6.0			4.0	6.0
Max Green Setting (Gmax), s		38.5		71.0			25.0	42.0
Max Q Clear Time (g_c+I1), s		15.9		21.9			27.0	30.9
Green Ext Time (p_c), s		6.4		2.8			0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	53.1
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
401: Miami Ave & SW 3rd St/SE 4th Street

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	123	69	0	0	0	255	0	496	939	611	148
Future Volume (vph)	0	123	69	0	0	0	255	0	496	939	611	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0		4.0	4.0	4.0	
Lane Util. Factor		0.95					1.00		0.88	0.97	0.95	
Frt		0.95					1.00		0.85	1.00	0.97	
Flt Protected		1.00					0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3382					1787		2814	3467	3470	
Flt Permitted		1.00					0.95		1.00	0.95	1.00	
Satd. Flow (perm)		3382					1787		2814	3467	3470	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	0	152	85	0	0	0	315	0	612	1159	754	183
RTOR Reduction (vph)	0	65	0	0	0	0	0	0	0	403	21	0
Lane Group Flow (vph)	0	172	0	0	0	0	315	0	612	756	916	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA					Prot		Free	Split	NA	
Protected Phases		8					1			2 7	2 7	
Permitted Phases									Free			
Actuated Green, G (s)		19.0					17.9		84.9	33.0	33.0	
Effective Green, g (s)		20.0					18.9		84.9	34.0	34.0	
Actuated g/C Ratio		0.24					0.22		1.00	0.40	0.40	
Clearance Time (s)		5.0					5.0					
Vehicle Extension (s)		2.5					2.0					
Lane Grp Cap (vph)		796					397		2814	1388	1389	
v/s Ratio Prot		0.05					c0.18			0.22	c0.26	
v/s Ratio Perm									c0.22			
v/c Ratio		0.22					0.79		0.22	0.54	0.66	
Uniform Delay, d1		26.1					31.2		0.0	19.5	20.7	
Progression Factor		1.00					1.00		1.00	1.08	1.04	
Incremental Delay, d2		0.1					9.8		0.2	0.2	0.6	
Delay (s)		26.2					40.9		0.2	21.2	22.1	
Level of Service		C					D		A	C	C	
Approach Delay (s)		26.2			0.0			14.0			21.6	
Approach LOS		C			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	237	315	612	1159	937
v/c Ratio	0.28	0.79	0.22	0.65	0.66
Control Delay	17.8	49.9	0.2	10.2	23.2
Queue Delay	0.0	0.0	0.0	2.4	45.9
Total Delay	17.8	49.9	0.2	12.6	69.1
Queue Length 50th (ft)	35	157	0	71	186
Queue Length 95th (ft)	57	#303	0	97	273
Internal Link Dist (ft)	113				39
Turn Bay Length (ft)					
Base Capacity (vph)	1263	404	2814	1971	1631
Starvation Cap Reductn	0	0	0	648	770
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.78	0.22	0.88	1.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
402: SE 4th Street & SE 1st Place

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1282	0	0	0	0	0	0	16	0	0	0
Future Volume (veh/h)	0	1282	0	0	0	0	0	0	16	0	0	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	0				0	0	1881	1881	0	0
Adj Flow Rate, veh/h	0	1474	0				0	0	18	0	0	0
Adj No. of Lanes	0	3	0				0	0	1	1	0	0
Peak Hour Factor	0.87	0.87	0.87				0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	1	0				0	0	1	1	0	0
Cap, veh/h	0	0	0				0	0	0	2	0	0
Arrive On Green	0.00	0.01	0.00				0.00	0.00	0.01	0.00	0.00	0.00
Sat Flow, veh/h		0						0		1792	0	
Grp Volume(v), veh/h		0.0						0.0		0	0.0	
Grp Sat Flow(s),veh/h/ln										1792		
Q Serve(g_s), s										0.0		
Cycle Q Clear(g_c), s										0.0		
Prop In Lane										1.00		
Lane Grp Cap(c), veh/h										2		
V/C Ratio(X)										0.00		
Avail Cap(c_a), veh/h										159		
HCM Platoon Ratio										1.00		
Upstream Filter(I)										0.00		
Uniform Delay (d), s/veh										0.0		
Incr Delay (d2), s/veh										0.0		
Initial Q Delay(d3),s/veh										0.0		
%ile BackOfQ(95%),veh/ln										0.0		
LnGrp Delay(d),s/veh										0.0		
LnGrp LOS												
Approach Vol, veh/h												
Approach Delay, s/veh												
Approach LOS												

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3					
Phs Duration (G+Y+Rc), s			0.0					
Change Period (Y+Rc), s			5.0					
Max Green Setting (Gmax), s			7.0					
Max Q Clear Time (g_c+I1), s			0.0					
Green Ext Time (p_c), s			0.0					

Intersection Summary	
HCM 2010 Ctrl Delay	0.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
403: SE 2nd Ave & SR 970 Off-Ramp/SE 3rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	867	898	0	0	0	0	0	0	60	819	0
Future Volume (veh/h)	0	867	898	0	0	0	0	0	0	60	819	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1900	1900							1900	1900	0
Adj Flow Rate, veh/h	0	854	1127							69	941	0
Adj No. of Lanes	0	1	2							0	3	0
Peak Hour Factor	0.87	0.87	0.87							0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0							0	0	0
Cap, veh/h	0	891	1514							112	1173	0
Arrive On Green	0.00	0.62	0.62							0.24	0.25	0.00
Sat Flow, veh/h	0	1900	3230							278	4834	0
Grp Volume(v), veh/h	0	854	1127							374	636	0
Grp Sat Flow(s),veh/h/ln	0	1900	1615							1810	1573	0
Q Serve(g_s), s	0.0	42.1	24.5							16.0	19.0	0.0
Cycle Q Clear(g_c), s	0.0	42.1	24.5							19.8	19.0	0.0
Prop In Lane	0.00		1.00							0.18		0.00
Lane Grp Cap(c), veh/h	0	891	1514							469	789	0
V/C Ratio(X)	0.00	0.96	0.74							0.80	0.81	0.00
Avail Cap(c_a), veh/h	0	1117	1899							615	1045	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	17.9	14.6							35.5	35.2	0.0
Incr Delay (d2), s/veh	0.0	21.7	3.4							4.9	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	35.4	16.9							16.1	13.4	0.0
LnGrp Delay(d),s/veh	0.0	39.6	18.0							40.4	38.3	0.0
LnGrp LOS		D	B							D	D	
Approach Vol, veh/h		1981									1010	
Approach Delay, s/veh		27.3									39.1	
Approach LOS		C									D	

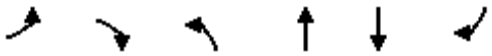
Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						50.9		29.1
Change Period (Y+Rc), s						5.6		5.5
Max Green Setting (Gmax), s						57.2		31.7
Max Q Clear Time (g_c+I1), s						44.1		21.8
Green Ext Time (p_c), s						1.2		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
404: Miami Ave & I-95 Off-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1291	0	0	407	0
Future Volume (vph)	0	1291	0	0	407	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	
Lane Util. Factor		0.88			0.91	
Frt		0.85			1.00	
Flt Protected		1.00			1.00	
Satd. Flow (prot)		2814			5136	
Flt Permitted		1.00			1.00	
Satd. Flow (perm)		2814			5136	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	1634	0	0	515	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	0	1631	0	0	515	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		custom			NA	
Protected Phases		1 4			2	
Permitted Phases						
Actuated Green, G (s)		61.7			13.2	
Effective Green, g (s)		62.7			14.2	
Actuated g/C Ratio		0.74			0.17	
Clearance Time (s)					5.0	
Vehicle Extension (s)					1.0	
Lane Grp Cap (vph)		2078			859	
v/s Ratio Prot		c0.58			c0.10	
v/s Ratio Perm						
v/c Ratio		0.78			0.60	
Uniform Delay, d1		6.9			32.7	
Progression Factor		1.00			1.00	
Incremental Delay, d2		1.9			0.8	
Delay (s)		8.8			33.5	
Level of Service		A			C	
Approach Delay (s)	8.8			0.0	33.5	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	SBT
Lane Group Flow (vph)	1634	515
v/c Ratio	0.79	0.60
Control Delay	10.0	37.9
Queue Delay	48.0	0.0
Total Delay	57.9	37.9
Queue Length 50th (ft)	244	93
Queue Length 95th (ft)	233	134
Internal Link Dist (ft)		177
Turn Bay Length (ft)		
Base Capacity (vph)	2128	856
Starvation Cap Reductn	0	0
Spillback Cap Reductn	688	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.13	0.60

Intersection Summary

HCM 2010 Signalized Intersection Summary
406: Miami Ave & SE 2nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	1056	0	0	0	0	0	239	140
Future Volume (veh/h)	0	0	0	168	1056	0	0	0	0	0	239	140
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1827	0				0	1827	1900
Adj Flow Rate, veh/h				202	1272	0				0	288	169
Adj No. of Lanes				0	2	0				0	2	0
Peak Hour Factor				0.83	0.83	0.83				0.83	0.83	0.83
Percent Heavy Veh, %				4	4	0				0	4	4
Cap, veh/h				265	1422	0				0	889	508
Arrive On Green				0.50	0.50	0.00				0.00	0.55	0.53
Sat Flow, veh/h				437	2910	0				0	2222	1217
Grp Volume(v), veh/h				773	701	0				0	233	224
Grp Sat Flow(s),veh/h/ln				1685	1579	0				0	1736	1612
Q Serve(g_s), s				41.9	39.6	0.0				0.0	7.3	7.9
Cycle Q Clear(g_c), s				42.2	39.6	0.0				0.0	7.3	7.9
Prop In Lane				0.26		0.00				0.00		0.75
Lane Grp Cap(c), veh/h				893	794	0				0	724	673
V/C Ratio(X)				0.87	0.88	0.00				0.00	0.32	0.33
Avail Cap(c_a), veh/h				1292	1169	0				0	724	673
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.33	1.33
Upstream Filter(I)				0.52	0.52	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				22.8	22.2	0.0				0.0	14.6	15.4
Incr Delay (d2), s/veh				1.7	2.2	0.0				0.0	1.2	1.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				25.3	22.6	0.0				0.0	6.7	6.6
LnGrp Delay(d),s/veh				24.6	24.4	0.0				0.0	15.8	16.7
LnGrp LOS				C	C						B	B
Approach Vol, veh/h					1474						457	
Approach Delay, s/veh					24.5						16.2	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		45.7		54.3				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		16.0		72.0				
Max Q Clear Time (g_c+I1), s		9.9		44.2				
Green Ext Time (p_c), s		0.6		4.1				

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
408: SE 1st Ave & SE 2nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	472	26	937	324	0	0	0	0
Future Volume (veh/h)	0	0	0	0	472	26	937	324	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1881	1900	1900	1881	0			
Adj Flow Rate, veh/h				0	674	37	1339	463	0			
Adj No. of Lanes				0	2	0	0	3	0			
Peak Hour Factor				0.70	0.70	0.70	0.70	0.70	0.70			
Percent Heavy Veh, %				0	1	1	1	1	0			
Cap, veh/h				0	804	44	1230	2351	0			
Arrive On Green				0.00	0.23	0.21	0.91	0.91	0.00			
Sat Flow, veh/h				0	3540	189	1792	3593	0			
Grp Volume(v), veh/h				0	349	362	1339	463	0			
Grp Sat Flow(s),veh/h/ln				0	1787	1848	1792	1712	0			
Q Serve(g_s), s				0.0	18.6	18.7	68.7	1.4	0.0			
Cycle Q Clear(g_c), s				0.0	18.6	18.7	68.7	1.4	0.0			
Prop In Lane				0.00		0.10	1.00		0.00			
Lane Grp Cap(c), veh/h				0	417	431	1230	2351	0			
V/C Ratio(X)				0.00	0.84	0.84	1.09	0.20	0.00			
Avail Cap(c_a), veh/h				0	465	480	1230	2351	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00			
Upstream Filter(I)				0.00	0.92	0.92	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	36.5	36.6	4.3	1.4	0.0			
Incr Delay (d2), s/veh				0.0	9.8	9.6	53.3	0.2	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				0.0	15.4	15.9	85.3	1.2	0.0			
LnGrp Delay(d),s/veh				0.0	46.3	46.3	57.6	1.6	0.0			
LnGrp LOS					D	D	F	A				
Approach Vol, veh/h					711			1802				
Approach Delay, s/veh					46.3			43.3				
Approach LOS					D			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				27.3		72.7		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				24.0		64.0		
Max Q Clear Time (g_c+I1), s				20.7		70.7		
Green Ext Time (p_c), s				0.7		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	44.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
409: SE 2nd Ave & SE 2nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	124	134	0	0	0	0	0	299	347
Future Volume (veh/h)	0	0	0	124	134	0	0	0	0	0	299	347
Number				5	2	12				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	1845	0				0	1845	1845
Adj Flow Rate, veh/h				96	208	0				0	332	386
Adj No. of Lanes				1	2	0				0	2	1
Peak Hour Factor				0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %				3	3	0				0	3	3
Cap, veh/h				1124	2361	0				0	981	439
Arrive On Green				0.85	0.85	0.00				0.00	0.28	0.28
Sat Flow, veh/h				1757	3689	0				0	3597	1568
Grp Volume(v), veh/h				96	208	0				0	332	386
Grp Sat Flow(s),veh/h/ln				1757	1845	0				0	1752	1568
Q Serve(g_s), s				0.9	0.9	0.0				0.0	7.5	23.5
Cycle Q Clear(g_c), s				0.9	0.9	0.0				0.0	7.5	23.5
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				1124	2361	0				0	981	439
V/C Ratio(X)				0.09	0.09	0.00				0.00	0.34	0.88
Avail Cap(c_a), veh/h				1124	2361	0				0	981	439
HCM Platoon Ratio				1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				2.7	2.7	0.0				0.0	28.6	34.4
Incr Delay (d2), s/veh				0.1	0.1	0.0				0.0	0.9	21.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				0.8	0.8	0.0				0.0	6.8	18.7
LnGrp Delay(d),s/veh				2.9	2.8	0.0				0.0	29.6	55.8
LnGrp LOS				A	A						C	E
Approach Vol, veh/h					304						718	
Approach Delay, s/veh					2.8						43.7	
Approach LOS					A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						8
Phs Duration (G+Y+Rc), s		68.0						32.0
Change Period (Y+Rc), s		6.0						6.0
Max Green Setting (Gmax), s		62.0						26.0
Max Q Clear Time (g_c+I1), s		2.9						25.5
Green Ext Time (p_c), s		0.5						0.2

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
501: NW 3rd Ct/SB On-Ramp/NW 3rd Ct & NW 2nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	34	78	343	0	0	0	0	0	388	1653	0
Future Volume (veh/h)	0	34	78	343	0	0	0	0	0	388	1653	0
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	0	0				1863	1863	0
Adj Flow Rate, veh/h	0	36	83	365	0	0				413	1759	0
Adj No. of Lanes	0	1	1	2	0	0				1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	0	0				2	2	0
Cap, veh/h	0	148	126	467	0	0				1179	3381	0
Arrive On Green	0.00	0.08	0.08	0.14	0.00	0.00				0.22	0.22	0.00
Sat Flow, veh/h	0	1863	1583	3442	365					1774	5253	0
Grp Volume(v), veh/h	0	36	83	365	44.1					413	1759	0
Grp Sat Flow(s),veh/h/ln	0	1863	1583	1721	D					1774	1695	0
Q Serve(g_s), s	0.0	1.8	5.1	10.3						19.7	30.5	0.0
Cycle Q Clear(g_c), s	0.0	1.8	5.1	10.3						19.7	30.5	0.0
Prop In Lane	0.00		1.00	1.00						1.00		0.00
Lane Grp Cap(c), veh/h	0	148	126	467						1179	3381	0
V/C Ratio(X)	0.00	0.24	0.66	0.78						0.35	0.52	0.00
Avail Cap(c_a), veh/h	0	298	253	688						1179	3381	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00						0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.79						0.86	0.86	0.00
Uniform Delay (d), s/veh	0.0	43.2	44.7	41.8						20.8	25.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	4.3	2.3						0.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0						0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	1.7	4.3	8.3						14.7	20.3	0.0
LnGrp Delay(d),s/veh	0.0	43.8	49.0	44.1						21.5	25.5	0.0
LnGrp LOS		D	D	D						C	C	
Approach Vol, veh/h		119									2172	
Approach Delay, s/veh		47.4									24.7	
Approach LOS		D									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2					7	8
Phs Duration (G+Y+Rc), s		70.5					17.6	12.0
Change Period (Y+Rc), s		* 4.3					* 4.7	* 4.7
Max Green Setting (Gmax), s		* 52					* 19	* 15
Max Q Clear Time (g_c+I1), s		21.7					12.3	7.1
Green Ext Time (p_c), s		0.1					0.6	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

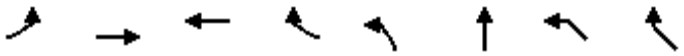
HCM Signalized Intersection Capacity Analysis
502: NB Off-Ramp & NW 3rd Ave & NW 2nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NWL	NWR	NWR2
Lane Configurations										
Traffic Volume (vph)	67	356	7	1	322	1006	248	14	241	18
Future Volume (vph)	67	356	7	1	322	1006	248	14	241	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	*0.60	*0.60		1.00	0.95	
Frt	1.00	1.00	1.00	0.85	1.00	0.97		0.89	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1787	1881	1787	1519	1072	2190		1651	1518	
Flt Permitted	0.75	1.00	1.00	1.00	0.95	1.00		0.99	1.00	
Satd. Flow (perm)	1415	1881	1787	1519	1072	2190		1651	1518	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	75	400	8	1	362	1130	279	16	271	20
RTOR Reduction (vph)	0	0	0	1	0	0	0	0	71	0
Lane Group Flow (vph)	75	400	8	0	362	1409	0	62	174	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%
Turn Type	Perm	NA	NA	Perm	Perm	NA		Prot	Perm	
Protected Phases		8	4			5		6		
Permitted Phases	8			4	5				6	
Actuated Green, G (s)	21.3	21.3	21.3	21.3	53.1	53.1		10.6	10.6	
Effective Green, g (s)	23.0	23.0	23.0	23.0	53.7	53.7		11.3	11.3	
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.54	0.54		0.11	0.11	
Clearance Time (s)	5.7	5.7	5.7	5.7	4.6	4.6		4.7	4.7	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	325	432	411	349	575	1176		186	171	
v/s Ratio Prot		c0.21	0.00			c0.64		0.04		
v/s Ratio Perm	0.05			0.00	0.34				c0.11	
v/c Ratio	0.23	0.93	0.02	0.00	0.63	1.20		0.33	1.02	
Uniform Delay, d1	31.3	37.7	29.8	29.6	16.2	23.1		40.9	44.4	
Progression Factor	0.81	0.83	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	24.6	0.0	0.0	1.6	97.6		4.8	73.5	
Delay (s)	25.6	55.9	29.8	29.6	17.8	120.8		45.6	117.9	
Level of Service	C	E	C	C	B	F		D	F	
Approach Delay (s)		51.1	29.8			99.7		103.3		
Approach LOS		D	C			F		F		

Intersection Summary			
HCM 2000 Control Delay	90.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
502: NB Off-Ramp & NW 3rd Ave & NW 2nd St



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NWL	NWR
Lane Group Flow (vph)	75	400	8	1	362	1409	62	245
v/c Ratio	0.23	0.92	0.02	0.00	0.63	1.20	0.33	1.01
Control Delay	27.1	59.9	29.6	0.0	22.6	122.9	46.4	92.5
Queue Delay	1.8	49.8	0.0	0.0	6.8	0.5	0.0	4.9
Total Delay	28.9	109.7	29.6	0.0	29.4	123.4	46.4	97.4
Queue Length 50th (ft)	40	253	4	0	260	~920	37	~116
Queue Length 95th (ft)	48	#388	16	0	428	#1115	78	#280
Internal Link Dist (ft)		109	427			348	296	
Turn Bay Length (ft)				90				
Base Capacity (vph)	335	445	423	412	575	1174	186	242
Starvation Cap Reductn	158	115	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	164	129	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.21	0.02	0.00	0.88	1.35	0.33	1.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
503: NW 3rd Ct & NW 3rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	126	34	0	0	0	0	517	1916	0
Future Volume (veh/h)	0	0	0	126	34	0	0	0	0	517	1916	0
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1881	1881	0				1881	1881	1900
Adj Flow Rate, veh/h				84	104	0				544	2017	0
Adj No. of Lanes				1	1	0				1	3	0
Peak Hour Factor				0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %				1	1	0				1	1	1
Cap, veh/h				157	165	0				1563	4274	0
Arrive On Green				0.09	0.09	0.00				1.00	1.00	0.00
Sat Flow, veh/h				1792	1881	0				1792	5305	0
Grp Volume(v), veh/h				84	104	0				544	2017	0
Grp Sat Flow(s),veh/h/ln				1792	1881	0				1792	1712	0
Q Serve(g_s), s				4.5	5.3	0.0				0.0	0.0	0.0
Cycle Q Clear(g_c), s				4.5	5.3	0.0				0.0	0.0	0.0
Prop In Lane				1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h				157	165	0				1563	4274	0
V/C Ratio(X)				0.53	0.63	0.00				0.35	0.47	0.00
Avail Cap(c_a), veh/h				394	414	0				1563	4274	0
HCM Platoon Ratio				1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)				0.94	0.94	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh				43.7	44.1	0.0				0.0	0.0	0.0
Incr Delay (d2), s/veh				2.0	2.8	0.0				0.6	0.4	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				4.1	5.2	0.0				0.5	0.3	0.0
LnGrp Delay(d),s/veh				45.6	46.8	0.0				0.6	0.4	0.0
LnGrp LOS				D	D					A	A	
Approach Vol, veh/h					188						2561	
Approach Delay, s/veh					46.3						0.4	
Approach LOS					D						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		87.2		12.8				
Change Period (Y+Rc), s		* 4.7		5.0				
Max Green Setting (Gmax), s		* 69		21.0				
Max Q Clear Time (g_c+I1), s		2.0		7.3				
Green Ext Time (p_c), s		8.8		0.5				

Intersection Summary	
HCM 2010 Ctrl Delay	3.6
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
504: NW 3rd Ave & NW 3rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	475	0	0	120	274	40	830	444	0	0	0
Future Volume (veh/h)	42	475	0	0	120	274	40	830	444	0	0	0
Number	7	4	14	3	8	18	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1900	1900	1881	1881			
Adj Flow Rate, veh/h	51	579	0	0	146	334	49	1012	541			
Adj No. of Lanes	1	1	0	0	2	0	0	2	1			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	236	660	0	0	627	561	82	1755	910			
Arrive On Green	0.35	0.35	0.00	0.00	0.35	0.34	0.76	0.76	0.76			
Sat Flow, veh/h	920	1881	0	0	1881	1599	143	3085	1599			
Grp Volume(v), veh/h	51	579	0	0	146	334	640	421	541			
Grp Sat Flow(s),veh/h/ln	920	1881	0	0	1787	1599	1874	1354	1599			
Q Serve(g_s), s	4.8	28.9	0.0	0.0	5.8	17.3	15.2	12.9	15.0			
Cycle Q Clear(g_c), s	22.2	28.9	0.0	0.0	5.8	17.3	15.2	12.9	15.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.08		1.00			
Lane Grp Cap(c), veh/h	236	660	0	0	627	561	1066	771	910			
V/C Ratio(X)	0.22	0.88	0.00	0.00	0.23	0.59	0.60	0.55	0.59			
Avail Cap(c_a), veh/h	446	1091	0	0	1037	927	1066	771	910			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.93	0.93	0.00	0.00	1.00	1.00	0.09	0.09	0.09			
Uniform Delay (d), s/veh	35.8	30.4	0.0	0.0	22.9	27.3	7.1	6.8	7.1			
Incr Delay (d2), s/veh	0.2	2.4	0.0	0.0	0.1	0.8	0.2	0.3	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	2.2	21.6	0.0	0.0	5.2	12.3	9.0	5.8	7.7			
LnGrp Delay(d),s/veh	35.9	32.8	0.0	0.0	23.1	28.0	7.3	7.1	7.3			
LnGrp LOS	D	C			C	C	A	A	A			
Approach Vol, veh/h		630			480			1602				
Approach Delay, s/veh		33.0			26.5			7.3				
Approach LOS		C			C			A				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				39.1		60.9		39.1
Change Period (Y+Rc), s				5.5		5.5		5.5
Max Green Setting (Gmax), s				56.5		32.5		56.5
Max Q Clear Time (g_c+I1), s				30.9		17.2		19.3
Green Ext Time (p_c), s				2.8		2.7		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
601: NW 3rd Ct/SB Off-Ramp & NW 8th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	530	66	28	73	0	0	0	0	615	1689	84
Future Volume (veh/h)	0	530	66	28	73	0	0	0	0	615	1689	84
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1845	1900	1845	1845	0				1900	1845	1900
Adj Flow Rate, veh/h	0	582	73	31	80	0				676	1856	92
Adj No. of Lanes	0	1	0	1	1	0				0	4	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	3	3	3	3	0				0	3	0
Cap, veh/h	0	655	82	127	752	0				828	2501	124
Arrive On Green	0.00	0.41	0.40	0.41	0.41	0.00				0.68	0.68	0.67
Sat Flow, veh/h	0	1607	202	767	1845	0				1616	4881	242
Grp Volume(v), veh/h	0	0	655	31	80	0				738	1202	684
Grp Sat Flow(s),veh/h/ln	0	0	1809	767	1845	0				1764	1586	1802
Q Serve(g_s), s	0.0	0.0	33.6	3.9	2.7	0.0				30.1	24.3	24.5
Cycle Q Clear(g_c), s	0.0	0.0	33.6	37.5	2.7	0.0				30.1	24.3	24.5
Prop In Lane	0.00		0.11	1.00		0.00				0.92		0.13
Lane Grp Cap(c), veh/h	0	0	737	127	752	0				904	1626	923
V/C Ratio(X)	0.00	0.00	0.89	0.24	0.11	0.00				0.82	0.74	0.74
Avail Cap(c_a), veh/h	0	0	868	182	885	0				904	1626	923
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)	0.00	0.00	1.00	0.90	0.90	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	27.6	44.9	18.3	0.0				12.6	11.6	11.7
Incr Delay (d2), s/veh	0.0	0.0	9.6	0.7	0.0	0.0				8.1	3.1	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	25.8	1.5	2.5	0.0				22.9	16.6	19.3
LnGrp Delay(d),s/veh	0.0	0.0	37.1	45.6	18.4	0.0				20.6	14.7	17.1
LnGrp LOS			D	D	B					C	B	B
Approach Vol, veh/h		655			111						2624	
Approach Delay, s/veh		37.1			26.0						17.0	
Approach LOS		D			C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		55.2		44.8				44.8
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		43.0		47.0				47.0
Max Q Clear Time (g_c+I1), s		32.1		39.5				35.6
Green Ext Time (p_c), s		6.3		0.2				2.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
602: NW 3rd Ave/NW 3rd Ave/NB On-Ramp & NW 8th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	555	590	0	0	70	400	31	1096	23	0	0	0
Future Volume (veh/h)	555	590	0	0	70	400	31	1096	23	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1810	1810	1810			
Adj Flow Rate, veh/h	610	648	0	0	77	440	34	1204	25			
Adj No. of Lanes	1	1	0	0	1	0	1	3	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	530	1249	0	0	162	924	405	1161	361			
Arrive On Green	0.69	0.69	0.00	0.00	0.69	0.68	0.31	0.31	0.31			
Sat Flow, veh/h	855	1810	0	0	234	1339	1723	4940	1538			
Grp Volume(v), veh/h	610	648	0	0	0	517	34	1204	25			
Grp Sat Flow(s),veh/h/ln	855	1810	0	0	0	1573	1723	1647	1538			
Q Serve(g_s), s	53.5	17.3	0.0	0.0	0.0	15.5	1.4	23.5	1.1			
Cycle Q Clear(g_c), s	69.0	17.3	0.0	0.0	0.0	15.5	1.4	23.5	1.1			
Prop In Lane	1.00		0.00	0.00		0.85	1.00		1.00			
Lane Grp Cap(c), veh/h	530	1249	0	0	0	1086	405	1161	361			
V/C Ratio(X)	1.15	0.52	0.00	0.00	0.00	0.48	0.08	1.04	0.07			
Avail Cap(c_a), veh/h	530	1249	0	0	0	1086	405	1161	361			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.40	0.40	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.9	7.5	0.0	0.0	0.0	7.4	26.8	34.4	26.7			
Incr Delay (d2), s/veh	77.5	0.1	0.0	0.0	0.0	0.2	0.1	36.5	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	46.7	11.5	0.0	0.0	0.0	11.0	1.2	26.2	0.9			
LnGrp Delay(d),s/veh	104.3	7.6	0.0	0.0	0.0	7.6	26.9	70.9	26.8			
LnGrp LOS	F	A				A	C	F	C			
Approach Vol, veh/h		1258			517			1263				
Approach Delay, s/veh		54.5			7.6			68.8				
Approach LOS		D			A			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		27.0		73.0				73.0
Change Period (Y+Rc), s		4.5		5.0				5.0
Max Green Setting (Gmax), s		22.5		68.0				68.0
Max Q Clear Time (g_c+I1), s		25.5		17.5				71.0
Green Ext Time (p_c), s		0.0		3.5				0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
650: NW 32 Street & I 95 SB Ramp

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	610	698	915	183	0	0	0	0	300	951	251
Future Volume (veh/h)	0	610	698	915	183	0	0	0	0	300	951	251
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	635	0	953	191	0				312	991	261
Adj No. of Lanes	0	2	1	2	1	0				1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	812	363	1041	1073	0				597	1191	533
Arrive On Green	0.00	0.23	0.00	0.30	0.58	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	3632	1583	3442	1863	0				1774	3539	1583
Grp Volume(v), veh/h	0	635	0	953	191	0				312	991	261
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1863	0				1774	1770	1583
Q Serve(g_s), s	0.0	17.3	0.0	27.4	5.0	0.0				14.5	26.5	13.4
Cycle Q Clear(g_c), s	0.0	17.3	0.0	27.4	5.0	0.0				14.5	26.5	13.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	812	363	1041	1073	0				597	1191	533
V/C Ratio(X)	0.00	0.78	0.00	0.92	0.18	0.00				0.52	0.83	0.49
Avail Cap(c_a), veh/h	0	1329	594	1124	1390	0				597	1191	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	37.1	0.0	34.5	10.3	0.0				27.4	31.4	27.0
Incr Delay (d2), s/veh	0.0	1.7	0.0	11.0	0.1	0.0				3.3	6.9	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	13.5	0.0	20.8	4.6	0.0				12.2	20.2	10.5
LnGrp Delay(d),s/veh	0.0	38.8	0.0	45.5	10.4	0.0				30.6	38.2	30.2
LnGrp LOS		D		D	B					C	D	C
Approach Vol, veh/h		635			1144						1564	
Approach Delay, s/veh		38.8			39.6						35.4	
Approach LOS		D			D						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			35.5	28.0		39.0		63.5
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			33.5	38.5		34.5		76.5
Max Q Clear Time (g_c+I1), s			29.4	19.3		28.5		7.0
Green Ext Time (p_c), s			1.6	4.2		4.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
651: NW 6 Avenue & NW 32 Street

2045 Build Scenario
Timing Plan: AM Peak Hour

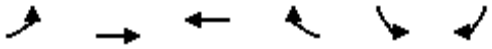
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	740	0	0	346	51	752	229	163	0	0	0
Future Volume (veh/h)	170	740	0	0	346	51	752	229	163	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	177	771	0	0	360	53	783	239	170			
Adj No. of Lanes	1	2	0	0	2	0	2	1	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	225	924	0	0	479	70	2409	688	490			
Arrive On Green	0.08	0.26	0.00	0.00	0.15	0.15	0.68	0.68	0.68			
Sat Flow, veh/h	1774	3632	0	0	3193	453	3548	1014	721			
Grp Volume(v), veh/h	177	771	0	0	204	209	783	0	409			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1783	1774	0	1735			
Q Serve(g_s), s	11.5	30.9	0.0	0.0	16.5	16.8	13.6	0.0	14.9			
Cycle Q Clear(g_c), s	11.5	30.9	0.0	0.0	16.5	16.8	13.6	0.0	14.9			
Prop In Lane	1.00		0.00	0.00		0.25	1.00		0.42			
Lane Grp Cap(c), veh/h	225	924	0	0	273	275	2409	0	1178			
V/C Ratio(X)	0.79	0.83	0.00	0.00	0.75	0.76	0.33	0.00	0.35			
Avail Cap(c_a), veh/h	225	1616	0	0	619	624	2409	0	1178			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.67	0.67	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	50.5	52.3	0.0	0.0	60.6	60.7	9.9	0.0	10.1			
Incr Delay (d2), s/veh	11.6	1.4	0.0	0.0	4.1	4.3	0.4	0.0	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	10.3	20.5	0.0	0.0	13.2	13.4	11.0	0.0	11.7			
LnGrp Delay(d),s/veh	62.1	53.7	0.0	0.0	64.7	65.0	10.3	0.0	10.9			
LnGrp LOS	E	D			E	E	B		B			
Approach Vol, veh/h		948			413			1192				
Approach Delay, s/veh		55.3			64.8			10.5				
Approach LOS		E			E			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		106.3		43.7			16.0	27.7
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		72.5		68.5			11.5	52.5
Max Q Clear Time (g_c+I1), s		16.9		32.9			13.5	18.8
Green Ext Time (p_c), s		6.9		6.3			0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	849	367	0	601	502
Future Volume (veh/h)	0	849	367	0	601	502
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	0	884	382	0	626	523
Adj No. of Lanes	0	2	2	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	1029	1029	0	1152	1028
Arrive On Green	0.00	0.29	0.58	0.00	0.65	0.65
Sat Flow, veh/h	0	3725	3725	0	1774	1583
Grp Volume(v), veh/h	0	884	382	0	626	523
Grp Sat Flow(s),veh/h/ln	0	1770	1770	0	1774	1583
Q Serve(g_s), s	0.0	35.4	8.6	0.0	28.7	26.0
Cycle Q Clear(g_c), s	0.0	35.4	8.6	0.0	28.7	26.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	1029	1029	0	1152	1028
V/C Ratio(X)	0.00	0.86	0.37	0.00	0.54	0.51
Avail Cap(c_a), veh/h	0	1333	1333	0	1152	1028
HCM Platoon Ratio	1.00	1.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.98	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	50.3	24.1	0.0	14.3	13.8
Incr Delay (d2), s/veh	0.0	4.7	0.2	0.0	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	24.9	7.5	0.0	20.7	17.5
LnGrp Delay(d),s/veh	0.0	55.0	24.3	0.0	16.1	15.6
LnGrp LOS		D	C		B	B
Approach Vol, veh/h		884	382		1149	
Approach Delay, s/veh		55.0	24.3		15.9	
Approach LOS		D	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				48.1		101.9		48.1
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				56.5		84.5		56.5
Max Q Clear Time (g_c+I1), s				37.4		30.7		10.6
Green Ext Time (p_c), s				6.2		4.8		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
653: NW 6 Avenue & NW 29 Street

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	849	601	0	0	117	101	250	1230	315	0	0	0
Future Volume (veh/h)	849	601	0	0	117	101	250	1230	315	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	884	626	0	0	122	105	260	1281	328			
Adj No. of Lanes	2	2	0	0	2	0	1	2	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	990	1569	0	0	833	661	881	1758	786			
Arrive On Green	0.74	0.74	0.00	0.00	0.44	0.44	0.50	0.50	0.50			
Sat Flow, veh/h	2229	3632	0	0	1972	1491	1774	3539	1583			
Grp Volume(v), veh/h	884	626	0	0	114	113	260	1281	328			
Grp Sat Flow(s),veh/h/ln	1115	1770	0	0	1770	1600	1774	1770	1583			
Q Serve(g_s), s	58.2	9.8	0.0	0.0	5.8	6.3	13.0	42.8	19.7			
Cycle Q Clear(g_c), s	64.5	9.8	0.0	0.0	5.8	6.3	13.0	42.8	19.7			
Prop In Lane	1.00		0.00	0.00		0.93	1.00		1.00			
Lane Grp Cap(c), veh/h	990	1569	0	0	784	709	881	1758	786			
V/C Ratio(X)	0.89	0.40	0.00	0.00	0.15	0.16	0.30	0.73	0.42			
Avail Cap(c_a), veh/h	990	1569	0	0	785	709	881	1758	786			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	22.3	12.1	0.0	0.0	24.8	25.0	22.3	29.8	24.0			
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.0	0.1	0.1	0.9	2.7	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	24.2	7.4	0.0	0.0	5.1	5.1	10.8	29.1	13.8			
LnGrp Delay(d),s/veh	29.3	12.2	0.0	0.0	24.9	25.1	23.1	32.5	25.6			
LnGrp LOS	C	B			C	C	C	C	C			
Approach Vol, veh/h		1510			227			1869				
Approach Delay, s/veh		22.2			25.0			30.0				
Approach LOS		C			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		79.0		71.0				71.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		74.5		66.5				66.5
Max Q Clear Time (g_c+I1), s		44.8		66.5				8.3
Green Ext Time (p_c), s		14.8		0.0				1.5

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
701: NW 62nd St & NW 7th Ave/SR 7

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	625	94	171	710	57	185	640	206	132	997	92
Future Volume (veh/h)	136	625	94	171	710	57	185	640	206	132	997	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	145	665	100	182	755	61	197	681	219	140	1061	98
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	229	818	123	232	848	68	305	1204	387	362	1441	133
Arrive On Green	0.09	0.27	0.26	0.08	0.26	0.25	0.12	0.62	0.60	0.10	0.60	0.58
Sat Flow, veh/h	1740	3028	455	1740	3253	263	1740	2585	831	1740	3214	297
Grp Volume(v), veh/h	145	381	384	182	403	413	197	457	443	140	573	586
Grp Sat Flow(s),veh/h/ln	1740	1736	1747	1740	1736	1781	1740	1736	1680	1740	1736	1775
Q Serve(g_s), s	8.3	28.7	28.8	10.8	31.3	31.3	8.3	21.6	22.0	5.9	33.2	33.4
Cycle Q Clear(g_c), s	8.3	28.7	28.8	10.8	31.3	31.3	8.3	21.6	22.0	5.9	33.2	33.4
Prop In Lane	1.00		0.26	1.00		0.15	1.00		0.49	1.00		0.17
Lane Grp Cap(c), veh/h	229	469	472	232	452	464	305	808	782	362	778	796
V/C Ratio(X)	0.63	0.81	0.81	0.78	0.89	0.89	0.65	0.57	0.57	0.39	0.74	0.74
Avail Cap(c_a), veh/h	250	508	512	232	471	483	350	808	782	462	778	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	47.8	48.1	37.8	49.8	50.0	22.8	18.4	18.9	18.8	22.3	22.5
Incr Delay (d2), s/veh	4.6	8.7	8.8	12.7	14.5	14.3	2.1	2.9	3.0	0.3	6.1	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.6	21.2	21.4	9.5	22.7	23.2	7.4	16.2	16.1	5.1	23.8	24.3
LnGrp Delay(d),s/veh	41.3	56.5	56.9	50.5	64.3	64.3	24.9	21.2	21.8	19.1	28.4	28.5
LnGrp LOS	D	E	E	D	E	E	C	C	C	B	C	C
Approach Vol, veh/h		910			998			1097			1299	
Approach Delay, s/veh		54.3			61.8			22.1			27.4	
Approach LOS		D			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	69.2	15.0	41.8	16.4	66.8	16.3	40.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.0	52.0	9.0	39.0	14.0	54.0	12.0	36.0
Max Q Clear Time (g_c+I1), s	7.9	24.0	12.8	30.8	10.3	35.4	10.3	33.3
Green Ext Time (p_c), s	0.1	2.2	0.0	2.6	0.1	2.8	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
702: NW 6th Ave/SB On-Ramp/SB Off-Ramp & NW 62nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	685	378	1044	782	0	0	0	0	587	439	145
Future Volume (veh/h)	0	685	378	1044	782	0	0	0	0	587	439	145
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1810	1900	1810	1810	0				1810	1810	1900
Adj Flow Rate, veh/h	0	745	411	1135	850	0				638	477	158
Adj No. of Lanes	0	2	0	2	1	0				1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	5	5	5	5	0				5	5	5
Cap, veh/h	0	513	282	1434	782	0				358	529	174
Arrive On Green	0.00	0.35	0.34	0.55	0.57	0.00				0.21	0.21	0.20
Sat Flow, veh/h	0	2360	1070	3447	1810	0				1723	2544	837
Grp Volume(v), veh/h	0	533	623	1135	850	0				638	321	314
Grp Sat Flow(s),veh/h/ln	0	1393	1621	1723	1810	0				1723	1719	1662
Q Serve(g_s), s	0.0	33.0	33.0	32.7	54.0	0.0				26.0	22.8	23.0
Cycle Q Clear(g_c), s	0.0	33.0	33.0	32.7	54.0	0.0				26.0	22.8	23.0
Prop In Lane	0.00		0.66	1.00		0.00				1.00		0.50
Lane Grp Cap(c), veh/h	0	368	428	1434	782	0				358	358	346
V/C Ratio(X)	0.00	1.45	1.46	0.79	1.09	0.00				1.78	0.90	0.91
Avail Cap(c_a), veh/h	0	368	428	1434	782	0				358	358	346
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.55	0.55	0.51	0.51	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	40.6	41.0	23.6	26.6	0.0				49.5	48.2	48.6
Incr Delay (d2), s/veh	0.0	210.8	212.0	2.4	50.7	0.0				362.0	24.2	26.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	61.5	71.8	20.4	67.6	0.0				87.1	19.2	19.0
LnGrp Delay(d),s/veh	0.0	251.4	253.0	26.0	77.3	0.0				411.5	72.4	75.0
LnGrp LOS		F	F	C	F					F	E	E
Approach Vol, veh/h		1156			1985						1273	
Approach Delay, s/veh		252.3			47.9						243.0	
Approach LOS		F			D						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.0				37.0		30.0
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		53.0				32.0		25.0
Max Q Clear Time (g_c+I1), s		56.0				35.0		28.0
Green Ext Time (p_c), s		0.0				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	157.7
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
703: NW 6th Ave/NB Off-Ramp/NW 5th Ct/NB On-Ramp & NW 62nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1173	0	0	864	11	962	99	585	0	0	0
Future Volume (veh/h)	99	1173	0	0	864	11	962	99	585	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1810	1810	0	0	1810	1900	1810	1810	1810			
Adj Flow Rate, veh/h	103	1222	0	0	900	11	1002	0	678			
Adj No. of Lanes	2	2	0	0	3	0	2	0	3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	5	5	5	5	5			
Cap, veh/h	160	1998	0	0	2289	28	1237	0	1619			
Arrive On Green	0.06	0.77	0.00	0.00	0.67	0.66	0.36	0.00	0.35			
Sat Flow, veh/h	3343	3529	0	0	4965	56	3447	0	4614			
Grp Volume(v), veh/h	103	1222	0	0	556	355	1002	0	678			
Grp Sat Flow(s),veh/h/ln	1672	1719	0	0	1411	1800	1723	0	1538			
Q Serve(g_s), s	3.8	19.1	0.0	0.0	11.1	11.1	32.8	0.0	14.0			
Cycle Q Clear(g_c), s	3.8	19.1	0.0	0.0	11.1	11.1	32.8	0.0	14.0			
Prop In Lane	1.00		0.00	0.00		0.03	1.00		1.00			
Lane Grp Cap(c), veh/h	160	1998	0	0	1415	902	1237	0	1619			
V/C Ratio(X)	0.64	0.61	0.00	0.00	0.39	0.39	0.81	0.00	0.42			
Avail Cap(c_a), veh/h	160	1998	0	0	1415	902	2027	0	2676			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	57.5	8.1	0.0	0.0	12.3	12.3	36.2	0.0	30.9			
Incr Delay (d2), s/veh	0.6	0.1	0.0	0.0	0.8	1.3	1.3	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	2.4	10.3	0.0	0.0	7.9	9.8	22.3	0.0	10.0			
LnGrp Delay(d),s/veh	58.1	8.2	0.0	0.0	13.1	13.6	37.5	0.0	31.0			
LnGrp LOS	E	A			B	B	D		C			
Approach Vol, veh/h		1325			911			1680				
Approach Delay, s/veh		12.1			13.3			34.9				
Approach LOS		B			B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.0	66.6		48.4		76.6		
Change Period (Y+Rc), s	5.0	5.0		4.5		5.0		
Max Green Setting (Gmax), s	5.0	33.0		72.5		43.0		
Max Q Clear Time (g_c+I1), s	5.8	13.1		34.8		21.1		
Green Ext Time (p_c), s	0.0	2.3		9.0		3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
704: NW 2nd Ave & NW 62nd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	1190	371	51	580	11	130	154	43	33	184	65
Future Volume (veh/h)	114	1190	371	51	580	11	130	154	43	33	184	65
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	119	1240	386	53	604	11	135	160	45	34	192	68
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	1400	426	211	1823	33	310	366	311	310	276	235
Arrive On Green	0.07	0.52	0.50	0.06	0.51	0.49	0.10	0.20	0.20	0.05	0.15	0.15
Sat Flow, veh/h	1774	2675	814	1774	3556	65	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	119	810	816	53	300	315	135	160	45	34	192	68
Grp Sat Flow(s),veh/h/ln	1774	1770	1719	1774	1770	1851	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.9	38.4	41.2	1.3	9.5	9.5	5.7	7.2	2.2	1.5	9.3	3.6
Cycle Q Clear(g_c), s	2.9	38.4	41.2	1.3	9.5	9.5	5.7	7.2	2.2	1.5	9.3	3.6
Prop In Lane	1.00		0.47	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	533	926	899	211	907	949	310	366	311	310	276	235
V/C Ratio(X)	0.22	0.88	0.91	0.25	0.33	0.33	0.44	0.44	0.14	0.11	0.70	0.29
Avail Cap(c_a), veh/h	593	1168	1135	234	1113	1164	392	644	547	348	507	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	20.0	21.1	19.2	13.7	13.7	28.3	33.7	31.7	31.1	38.6	36.2
Incr Delay (d2), s/veh	0.1	5.4	7.9	0.2	0.1	0.1	0.4	0.6	0.2	0.1	2.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	27.4	29.1	1.3	8.1	8.4	5.1	6.8	1.8	1.3	8.6	2.9
LnGrp Delay(d),s/veh	9.5	25.4	29.0	19.4	13.7	13.8	28.7	34.3	31.9	31.2	40.9	36.7
LnGrp LOS	A	C	C	B	B	B	C	C	C	C	D	D
Approach Vol, veh/h		1745			668			340			294	
Approach Delay, s/veh		26.0			14.2			31.7			38.8	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	52.9	9.0	22.8	9.8	53.9	13.6	18.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	8.0	58.0	5.0	31.0	5.0	61.0	12.0	24.0
Max Q Clear Time (g_c+I1), s	4.9	11.5	3.5	9.2	3.3	43.2	7.7	11.3
Green Ext Time (p_c), s	0.0	1.3	0.0	0.8	0.0	4.7	0.1	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	25.3
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
901: NW 7th Ave/SR 7 & NW 79th St

2045 Build Scenario
Timing Plan: AM Peak Hour

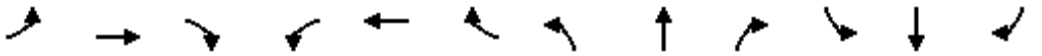
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1041	29	54	353	23	148	585	239	428	1427	414
Future Volume (veh/h)	87	1041	29	54	353	23	148	585	239	428	1427	414
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1900	1810	1810	1900	1810	1810	1810	1810	1810	1810
Adj Flow Rate, veh/h	91	1084	30	56	368	24	154	609	249	446	1486	431
Adj No. of Lanes	1	2	0	1	2	0	1	3	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	5	5	5	5	5	5	5	5	5	5	5	5
Cap, veh/h	396	1147	32	155	1085	70	204	1541	458	506	1407	717
Arrive On Green	0.06	0.34	0.32	0.07	0.44	0.42	0.09	0.31	0.30	0.37	0.82	0.82
Sat Flow, veh/h	1723	3417	95	1723	3278	213	1723	4940	1538	1723	3438	1538
Grp Volume(v), veh/h	91	545	569	56	192	200	154	609	249	446	1486	431
Grp Sat Flow(s),veh/h/ln	1723	1719	1793	1723	1719	1772	1723	1647	1538	1723	1719	1538
Q Serve(g_s), s	4.8	43.2	43.2	2.9	10.3	10.4	8.2	13.5	19.0	26.0	57.3	14.6
Cycle Q Clear(g_c), s	4.8	43.2	43.2	2.9	10.3	10.4	8.2	13.5	19.0	26.0	57.3	14.6
Prop In Lane	1.00		0.05	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	577	602	155	569	586	204	1541	458	506	1407	717
V/C Ratio(X)	0.23	0.94	0.94	0.36	0.34	0.34	0.76	0.40	0.54	0.88	1.06	0.60
Avail Cap(c_a), veh/h	396	577	602	163	577	595	371	1541	458	506	1407	717
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	28.1	45.2	45.3	34.1	29.1	29.3	34.5	37.8	41.2	20.8	12.7	7.3
Incr Delay (d2), s/veh	0.1	24.4	23.8	0.4	0.2	0.2	2.2	0.8	4.6	10.1	35.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	32.5	33.6	2.5	8.0	8.3	7.2	10.4	13.4	18.8	58.1	9.4
LnGrp Delay(d),s/veh	28.2	69.7	69.1	34.5	29.3	29.5	36.6	38.6	45.8	30.9	47.8	9.5
LnGrp LOS	C	E	E	C	C	C	D	D	D	C	F	A
Approach Vol, veh/h		1205			448			1012			2363	
Approach Delay, s/veh		66.3			30.0			40.0			37.6	
Approach LOS		E			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	61.3	12.0	50.3	30.0	47.7	11.3	51.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	24.0	41.0	6.0	45.0	24.0	41.0	6.0	45.0
Max Q Clear Time (g_c+I1), s	10.2	59.3	6.8	12.4	28.0	21.0	4.9	45.2
Green Ext Time (p_c), s	0.2	0.0	0.0	2.0	0.0	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
902: NW 6th Ct/SB On-Ramp/NW 6th Ct & NW 79th St

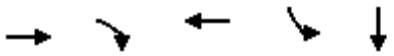
2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑					↰	↑↑	↱
Traffic Volume (vph)	0	1256	452	0	548	0	0	0	0	501	947	0
Future Volume (vph)	0	1256	452	0	548	0	0	0	0	501	947	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	
Lane Util. Factor		*0.82	1.00		1.00					1.00	0.95	
Frt		1.00	0.85		1.00					1.00	1.00	
Flt Protected		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (prot)		2940	1524		1792					1703	3406	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		2940	1524		1792					1703	3406	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	1351	486	0	589	0	0	0	0	539	1018	0
RTOR Reduction (vph)	0	0	22	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1351	464	0	589	0	0	0	0	539	1018	0
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type		NA	Perm		NA					pm+pt	NA	Perm
Protected Phases		6			1 2					8	3	
Permitted Phases			6							3		3
Actuated Green, G (s)		73.4	73.4		73.4					57.0	57.0	
Effective Green, g (s)		74.4	74.4		72.4					57.6	57.6	
Actuated g/C Ratio		0.53	0.53		0.52					0.41	0.41	
Clearance Time (s)		5.0	5.0							4.6	4.6	
Vehicle Extension (s)		1.0	1.0							3.0	3.5	
Lane Grp Cap (vph)		1562	809		926					700	1401	
v/s Ratio Prot		c0.46			0.33					c0.14	0.30	
v/s Ratio Perm			0.30							0.18		
v/c Ratio		0.86	0.57		0.64					0.77	0.73	
Uniform Delay, d1		28.4	22.1		24.3					34.1	34.6	
Progression Factor		0.57	0.63		0.24					1.31	1.33	
Incremental Delay, d2		3.6	1.5		0.6					3.0	1.1	
Delay (s)		19.9	15.5		6.4					47.5	47.0	
Level of Service		B	B		A					D	D	
Approach Delay (s)		18.7			6.4			0.0			47.2	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.6
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
902: NW 6th Ct/SB On-Ramp/NW 6th Ct & NW 79th St



Lane Group	EBT	EBR	WBT	SBL	SBT
Lane Group Flow (vph)	1351	486	589	539	1018
v/c Ratio	0.87	0.58	0.62	0.77	0.73
Control Delay	20.1	14.2	7.2	52.6	48.7
Queue Delay	7.4	2.8	0.9	31.2	0.2
Total Delay	27.5	17.0	8.1	83.8	49.0
Queue Length 50th (ft)	293	145	34	381	377
Queue Length 95th (ft)	m321	m171	m90	m467	451
Internal Link Dist (ft)	267		223		566
Turn Bay Length (ft)					
Base Capacity (vph)	1591	847	970	701	1402
Starvation Cap Reductn	211	246	162	23	61
Spillback Cap Reductn	0	0	0	184	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.81	0.73	1.04	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
903: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 79th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	472	1351	0	0	546	20	0	575	567	0	0	0
Future Volume (vph)	472	1351	0	0	546	20	0	575	567	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0	3.4			
Lane Util. Factor	0.97	0.95			1.00			0.95	1.00			
Frt	1.00	1.00			1.00			1.00	0.85			
Flt Protected	0.95	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	3273	3374			1767			3374	1509			
Flt Permitted	0.95	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	3273	3374			1767			3374	1509			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	497	1422	0	0	575	21	0	605	597	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	497	1422	0	0	595	0	0	605	597	0	0	0
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Prot	NA			NA			NA	Free			
Protected Phases	1 8	6 8			2			7				
Permitted Phases									Free			
Actuated Green, G (s)	46.4	102.8			53.4			27.6	140.0			
Effective Green, g (s)	39.8	100.2			54.4			28.2	140.0			
Actuated g/C Ratio	0.28	0.72			0.39			0.20	1.00			
Clearance Time (s)					5.0			4.6				
Vehicle Extension (s)					1.0			2.5				
Lane Grp Cap (vph)	930	2414			686			679	1509			
v/s Ratio Prot	0.15	c0.42			c0.34			c0.18				
v/s Ratio Perm									0.40			
v/c Ratio	0.53	0.59			0.87			0.89	0.40			
Uniform Delay, d1	42.3	9.8			39.5			54.4	0.0			
Progression Factor	1.27	0.61			1.00			1.00	1.00			
Incremental Delay, d2	0.2	0.2			13.9			13.9	0.8			
Delay (s)	53.7	6.2			53.4			68.3	0.8			
Level of Service	D	A			D			E	A			
Approach Delay (s)		18.5			53.4			34.8			0.0	
Approach LOS		B			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
903: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 79th St

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	497	1422	596	605	597
v/c Ratio	0.47	0.57	0.87	0.89	0.40
Control Delay	49.8	5.6	53.6	70.5	0.8
Queue Delay	6.3	1.6	0.0	0.0	0.0
Total Delay	56.0	7.2	53.6	70.5	0.8
Queue Length 50th (ft)	205	178	487	282	0
Queue Length 95th (ft)	m250	201	#693	#375	0
Internal Link Dist (ft)		223	529	429	
Turn Bay Length (ft)	190				
Base Capacity (vph)	1062	2535	705	703	1509
Starvation Cap Reductn	502	869	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.85	0.85	0.86	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
904: NW 7th Ave/SR 7 & NW 81st St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	321	843	461	22	674	0	0	1948	173
Future Volume (veh/h)	0	0	0	321	843	461	22	674	0	0	1948	173
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1881	1881	1881	1881	1881	0	0	1881	1900
Adj Flow Rate, veh/h				328	900	443	22	688	0	0	1988	177
Adj No. of Lanes				1	2	1	1	3	0	0	3	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				1	1	1	1	1	0	0	1	1
Cap, veh/h				622	1306	555	129	3059	0	0	2661	235
Arrive On Green				0.35	0.35	0.35	0.02	0.79	0.00	0.00	0.74	0.73
Sat Flow, veh/h				1792	3762	1599	1792	5305	0	0	4974	425
Grp Volume(v), veh/h				328	900	443	22	688	0	0	1413	752
Grp Sat Flow(s),veh/h/ln				1792	1881	1599	1792	1712	0	0	1712	1806
Q Serve(g_s), s				20.5	28.7	35.0	0.8	4.7	0.0	0.0	33.7	34.6
Cycle Q Clear(g_c), s				20.5	28.7	35.0	0.8	4.7	0.0	0.0	33.7	34.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.24
Lane Grp Cap(c), veh/h				622	1306	555	129	3059	0	0	1896	1000
V/C Ratio(X)				0.53	0.69	0.80	0.17	0.22	0.00	0.00	0.75	0.75
Avail Cap(c_a), veh/h				717	1505	640	156	3059	0	0	1896	1000
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.70	0.70	0.70	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.5	39.2	41.3	18.7	6.4	0.0	0.0	12.7	12.9
Incr Delay (d2), s/veh				0.6	0.9	4.7	0.2	0.2	0.0	0.0	2.7	5.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				14.6	20.4	36.5	0.7	4.1	0.0	0.0	23.1	25.2
LnGrp Delay(d),s/veh				37.1	40.1	46.0	18.9	6.5	0.0	0.0	15.4	18.1
LnGrp LOS				D	D	D	B	A			B	B
Approach Vol, veh/h					1671			710			2165	
Approach Delay, s/veh					41.1			6.9			16.3	
Approach LOS					D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.4		52.6	5.9	81.5		
Change Period (Y+Rc), s		* 5.2		* 5.2	3.0	* 5.2		
Max Green Setting (Gmax), s		* 75		* 55	5.0	* 67		
Max Q Clear Time (g_c+I1), s		6.7		37.0	2.8	36.6		
Green Ext Time (p_c), s		2.0		10.4	0.0	8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

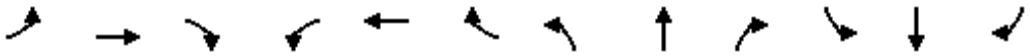
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
905: NW 6th Ct/NW 6th Ct/SB Off-Ramp & NW 81st St

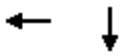
2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	411	1347	0	0	0	0	0	1038	279
Future Volume (vph)	0	0	0	411	1347	0	0	0	0	0	1038	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.86						0.91	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4659						4829	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4659						4829	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	442	1448	0	0	0	0	0	1116	300
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	0	0	0	1883	0	0	0	0	0	1385	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type				Split	NA						NA	
Protected Phases				2 3	2 3						4	
Permitted Phases												
Actuated Green, G (s)					85.1						44.5	
Effective Green, g (s)					86.3						45.7	
Actuated g/C Ratio					0.62						0.33	
Clearance Time (s)											5.2	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)					2871						1576	
v/s Ratio Prot					c0.40						c0.29	
v/s Ratio Perm												
v/c Ratio					0.66						0.88	
Uniform Delay, d1					17.3						44.5	
Progression Factor					0.33						1.00	
Incremental Delay, d2					0.3						5.9	
Delay (s)					6.0						50.5	
Level of Service					A						D	
Approach Delay (s)		0.0			6.0			0.0			50.5	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
905: NW 6th Ct/NW 6th Ct/SB Off-Ramp & NW 81st St

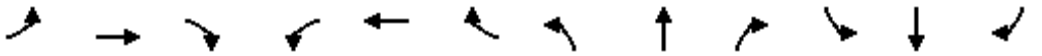


Lane Group	WBT	SBT
Lane Group Flow (vph)	1890	1416
v/c Ratio	0.66	0.88
Control Delay	6.4	50.5
Queue Delay	1.1	0.1
Total Delay	7.5	50.6
Queue Length 50th (ft)	118	432
Queue Length 95th (ft)	128	498
Internal Link Dist (ft)	240	535
Turn Bay Length (ft)		
Base Capacity (vph)	2876	1617
Starvation Cap Reductn	669	0
Spillback Cap Reductn	233	6
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.86	0.88

Intersection Summary

HCM Signalized Intersection Capacity Analysis
906: NW 6th Ave/NW 6th Ave/NB On-Ramp & NW 81st St

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1401	1054	357	709	0	0	0	0
Future Volume (vph)	0	0	0	0	1401	1054	357	709	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	2.8		4.0				
Lane Util. Factor					0.91	1.00		0.91				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.98				
Satd. Flow (prot)					4988	1553		3270				
Flt Permitted					1.00	1.00		0.98				
Satd. Flow (perm)					4988	1553		3270				
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	0	1773	1334	452	897	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1773	1334	0	1341	0	0	0	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type					NA	Free	Split	NA				
Protected Phases					2		8	8				
Permitted Phases						Free						
Actuated Green, G (s)					58.9	140.0		70.7				
Effective Green, g (s)					60.1	140.0		71.9				
Actuated g/C Ratio					0.43	1.00		0.51				
Clearance Time (s)					5.2			5.2				
Vehicle Extension (s)					1.0			3.0				
Lane Grp Cap (vph)					2141	1553		1679				
v/s Ratio Prot					0.36			0.41				
v/s Ratio Perm						c0.86						
v/c Ratio					0.83	0.86		0.80				
Uniform Delay, d1					35.4	0.0		28.1				
Progression Factor					1.00	1.00		0.25				
Incremental Delay, d2					3.9	6.4		2.3				
Delay (s)					39.2	6.4		9.4				
Level of Service					D	A		A				
Approach Delay (s)		0.0			25.1			9.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
906: NW 6th Ave/NW 6th Ave/NB On-Ramp & NW 81st St

Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1773	1334	1349
v/c Ratio	0.83	0.86	0.80
Control Delay	39.7	6.6	10.5
Queue Delay	0.2	0.0	0.0
Total Delay	39.9	6.6	10.5
Queue Length 50th (ft)	519	0	100
Queue Length 95th (ft)	477	0	92
Internal Link Dist (ft)	629		570
Turn Bay Length (ft)			
Base Capacity (vph)	2139	1553	1695
Starvation Cap Reductn	0	0	3
Spillback Cap Reductn	45	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.85	0.86	0.80

Intersection Summary

HCM 2010 Signalized Intersection Summary
1001: NW 7th Ave/SR 7 & NW 95th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	726	99	297	555	48	216	490	327	335	2023	131
Future Volume (veh/h)	65	726	99	297	555	48	216	490	327	335	2023	131
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	69	772	105	316	590	51	230	521	348	356	2152	139
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	849	557	274	1035	708	256	1238	578	460	1993	128
Arrive On Green	0.06	0.24	0.24	0.11	0.29	0.29	0.15	0.49	0.46	0.21	0.54	0.52
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	3390	1583	1774	4884	313
Grp Volume(v), veh/h	69	772	105	316	590	51	230	521	348	356	1489	802
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	1695	1583	1774	1695	1807
Q Serve(g_s), s	3.5	26.5	5.8	14.0	17.7	2.3	11.8	12.4	20.5	14.9	51.0	51.0
Cycle Q Clear(g_c), s	3.5	26.5	5.8	14.0	17.7	2.3	11.8	12.4	20.5	14.9	51.0	51.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	282	849	557	274	1035	708	256	1238	578	460	1383	737
V/C Ratio(X)	0.24	0.91	0.19	1.15	0.57	0.07	0.90	0.42	0.60	0.77	1.08	1.09
Avail Cap(c_a), veh/h	290	849	557	274	1035	708	256	1238	578	469	1383	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	46.2	28.1	34.1	37.5	19.7	34.4	23.6	27.0	19.9	28.6	28.9
Incr Delay (d2), s/veh	0.2	13.5	0.1	95.0	0.5	0.0	30.2	1.1	4.6	7.0	47.7	59.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	20.8	4.5	30.3	12.9	1.8	15.0	10.0	14.7	12.8	58.8	67.0
LnGrp Delay(d),s/veh	32.6	59.6	28.2	129.1	38.0	19.7	64.5	24.7	31.6	26.9	76.3	88.2
LnGrp LOS	C	E	C	F	D	B	E	C	C	C	F	F
Approach Vol, veh/h		946			957			1099			2647	
Approach Delay, s/veh		54.2			67.1			35.2			73.3	
Approach LOS		D			E			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	55.0	11.4	40.6	23.4	49.6	18.0	34.0
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	11.6	48.6	5.6	33.6	17.6	42.6	11.6	27.6
Max Q Clear Time (g_c+I1), s	13.8	53.0	5.5	19.7	16.9	22.5	16.0	28.5
Green Ext Time (p_c), s	0.0	0.0	0.0	3.0	0.1	2.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.6
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
1002: SB On-Ramp/SB Off-Ramp & NW 95th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	507	881	1061	180	0	0	0	0	812	806	721
Future Volume (veh/h)	0	507	881	1061	180	0	0	0	0	812	806	721
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1900	1900	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	551	0	1153	196	0				883	876	784
Adj No. of Lanes	0	2	1	1	2	0				2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	748	335	685	1956	0				1208	1242	556
Arrive On Green	0.00	0.21	0.00	0.53	0.92	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3705	1615	1774	3632	0				3442	3539	1583
Grp Volume(v), veh/h	0	551	0	1153	196	0				883	876	784
Grp Sat Flow(s),veh/h/ln	0	1805	1615	1774	1770	0				1721	1770	1583
Q Serve(g_s), s	0.0	15.7	0.0	35.0	0.5	0.0				24.6	23.5	38.6
Cycle Q Clear(g_c), s	0.0	15.7	0.0	35.0	0.5	0.0				24.6	23.5	38.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	748	335	685	1956	0				1208	1242	556
V/C Ratio(X)	0.00	0.74	0.00	1.68	0.10	0.00				0.73	0.71	1.41
Avail Cap(c_a), veh/h	0	748	335	685	1956	0				1208	1242	556
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.33	0.00	0.09	0.09	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	40.8	0.0	15.9	1.9	0.0				31.2	30.8	35.7
Incr Delay (d2), s/veh	0.0	2.2	0.0	308.1	0.0	0.0				2.4	1.9	195.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	10.7	0.0	106.9	0.4	0.0				17.7	17.4	84.6
LnGrp Delay(d),s/veh	0.0	43.0	0.0	324.0	1.9	0.0				33.6	32.7	231.2
LnGrp LOS		D		F	A					C	C	F
Approach Vol, veh/h		551			1349						2543	
Approach Delay, s/veh		43.0			277.2						94.2	
Approach LOS		D			F						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		66.0			38.0	28.0		44.0
Change Period (Y+Rc), s		* 5.2			3.0	* 5.2		5.4
Max Green Setting (Gmax), s		* 61			35.0	* 23		38.6
Max Q Clear Time (g_c+I1), s		2.5			37.0	17.7		40.6
Green Ext Time (p_c), s		0.5			0.0	0.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	143.4
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1003: NB Off-Ramp/NW 6th Avenue & NW 95th St

2045 Build Scenario
Timing Plan: AM Peak Hour

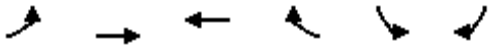
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	902	417	0	0	856	332	385	173	449	0	0	0
Future Volume (veh/h)	902	417	0	0	856	332	385	173	449	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	980	453	0	0	930	361	418	188	488			
Adj No. of Lanes	1	2	0	0	2	0	1	2	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	641	2327	0	0	747	288	469	936	737			
Arrive On Green	0.53	1.00	0.00	0.00	0.30	0.30	0.26	0.26	0.26			
Sat Flow, veh/h	1810	3705	0	0	2592	963	1774	3539	2787			
Grp Volume(v), veh/h	980	453	0	0	657	634	418	188	488			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1770	1693	1774	1770	1393			
Q Serve(g_s), s	35.0	0.0	0.0	0.0	32.9	32.9	24.9	4.5	17.2			
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	32.9	32.9	24.9	4.5	17.2			
Prop In Lane	1.00		0.00	0.00		0.57	1.00		1.00			
Lane Grp Cap(c), veh/h	641	2327	0	0	529	506	469	936	737			
V/C Ratio(X)	1.53	0.19	0.00	0.00	1.24	1.25	0.89	0.20	0.66			
Avail Cap(c_a), veh/h	641	2327	0	0	529	506	500	997	785			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.60	0.60	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	19.9	0.0	0.0	0.0	38.5	38.5	38.9	31.4	36.1			
Incr Delay (d2), s/veh	242.5	0.1	0.0	0.0	123.7	129.3	17.5	0.1	2.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	112.0	0.1	0.0	0.0	61.6	60.3	20.7	4.0	11.1			
LnGrp Delay(d),s/veh	262.4	0.1	0.0	0.0	162.2	167.9	56.4	31.5	38.1			
LnGrp LOS	F	A			F	F	E	C	D			
Approach Vol, veh/h		1433			1291			1094				
Approach Delay, s/veh		179.5			165.0			44.0				
Approach LOS		F			F			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	38.0	37.9		34.1		75.9		
Change Period (Y+Rc), s	3.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	35.0	31.0		31.0		69.0		
Max Q Clear Time (g_c+I1), s	37.0	34.9		26.9		2.0		
Green Ext Time (p_c), s	0.0	0.0		2.2		1.1		

Intersection Summary		
HCM 2010 Ctrl Delay		135.8
HCM 2010 LOS		F

Part 1
PM Peak Period

HCM 2010 Signalized Intersection Summary
101: US 1/SR 5 & SW 16th Ave



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	355	2833	3238	364	327	165
Future Volume (veh/h)	355	2833	3238	364	327	165
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1900	1881	1881
Adj Flow Rate, veh/h	362	2891	3304	0	334	168
Adj No. of Lanes	1	3	3	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	341	4171	3116	0	205	183
Arrive On Green	0.17	0.81	0.61	0.00	0.11	0.11
Sat Flow, veh/h	1792	5305	5474	0	1792	1599
Grp Volume(v), veh/h	362	2891	3304	0	334	168
Grp Sat Flow(s),veh/h/ln	1792	1712	1712	0	1792	1599
Q Serve(g_s), s	30.2	43.5	109.2	0.0	20.6	18.7
Cycle Q Clear(g_c), s	30.2	43.5	109.2	0.0	20.6	18.7
Prop In Lane	1.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	341	4171	3116	0	205	183
V/C Ratio(X)	1.06	0.69	1.06	0.00	1.63	0.92
Avail Cap(c_a), veh/h	341	4171	3116	0	205	183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	68.6	7.3	35.4	0.0	79.7	78.9
Incr Delay (d2), s/veh	66.4	1.0	35.1	0.0	304.2	43.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	41.8	28.2	110.6	0.0	49.5	25.0
LnGrp Delay(d),s/veh	135.0	8.2	70.5	0.0	383.9	122.4
LnGrp LOS	F	A	F		F	F
Approach Vol, veh/h		3253	3304		502	
Approach Delay, s/veh		22.3	70.5		296.4	
Approach LOS		C	E		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		153.0		27.0	37.0	116.0		
Change Period (Y+Rc), s		6.8		6.4	6.8	6.8		
Max Green Setting (Gmax), s		146.2		20.6	30.2	109.2		
Max Q Clear Time (g_c+I1), s		45.5		22.6	32.2	111.2		
Green Ext Time (p_c), s		63.7		0.0	0.0	0.0		

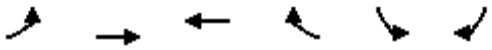
Intersection Summary	
HCM 2010 Ctrl Delay	64.4
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

HCM Unsignalized Intersection Capacity Analysis
201: SW 26th Rd & SB Off-Ramp

2045 Build Scenario
Timing Plan: PM Peak Hour



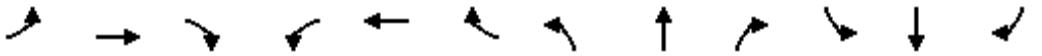
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	550	0	0	1580	542
Future Volume (Veh/h)	0	550	0	0	1580	542
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	579	0	0	1663	571
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					Raised	
Median storage veh)					1	
Upstream signal (ft)					338	
pX, platoon unblocked						
vC, conflicting volume	3612	3612	3326	0	0	
vC1, stage 1 conf vol	3612	3612	0			
vC2, stage 2 conf vol	0	0	3326			
vCu, unblocked vol	3612	3612	3326	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)	6.1	5.5	5.5			
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	0	0	0	100	0	
cM capacity (veh/h)	0	0	0	1088	1630	

Direction, Lane #	EB 1	EB 2	SB 1	SB 2	SB 3
Volume Total	290	290	665	665	904
Volume Left	0	0	665	665	333
Volume Right	0	0	0	0	571
cSH	0	0	1630	1630	1630
Volume to Capacity	Err	Err	1.02	1.02	1.02
Queue Length 95th (ft)	Err	Err	679	679	679
Control Delay (s)	Err	Err	44.0	44.0	44.0
Lane LOS	F	F	E	E	E
Approach Delay (s)	Err		44.0		
Approach LOS	F				

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
202: SW 26th Rd & NB On-Ramp

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	1755	288	0	0	601	0	0	66	0	0	0
Future Volume (Veh/h)	87	1755	288	0	0	601	0	0	66	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	94	1887	310	0	0	646	0	0	71	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					410							
pX, platoon unblocked												
vC, conflicting volume	0			2197			2553	2230	627	731	2385	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			2197			2553	2230	627	731	2385	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			100	100	83	100	100	100
cM capacity (veh/h)	1629			240			13	40	429	249	32	1088

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	NB 1
Volume Total	408	629	629	624	646	71
Volume Left	94	0	0	0	0	0
Volume Right	0	0	0	310	646	71
cSH	1629	1700	1700	1700	1700	429
Volume to Capacity	0.06	0.37	0.37	0.37	0.38	0.17
Queue Length 95th (ft)	5	0	0	0	0	15
Control Delay (s)	2.1	0.0	0.0	0.0	0.0	15.1
Lane LOS	A					C
Approach Delay (s)	0.4				0.0	15.1
Approach LOS						C

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	75.4%	ICU Level of Service	D	
Analysis Period (min)	15			

HCM 2010 Signalized Intersection Summary
203: S Miami Ave & SW 26th Rd

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1204	548	112	171	134	414	379	9	65	234	15
Future Volume (veh/h)	69	1204	548	112	171	134	414	379	9	65	234	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	73	1267	0	118	180	0	436	399	0	68	246	0
Adj No. of Lanes	1	3	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	389	1365	425	178	551	469	747	1825	0	489	1336	0
Arrive On Green	0.04	0.27	0.00	0.06	0.29	0.00	0.23	0.68	0.00	0.05	0.50	0.00
Sat Flow, veh/h	1792	5136	1599	1792	1881	1599	1792	3668	0	1792	3668	0
Grp Volume(v), veh/h	73	1267	0	118	180	0	436	399	0	68	246	0
Grp Sat Flow(s),veh/h/ln	1792	1712	1599	1792	1881	1599	1792	1787	0	1792	1787	0
Q Serve(g_s), s	3.8	31.3	0.0	6.0	9.7	0.0	19.1	5.5	0.0	3.0	5.0	0.0
Cycle Q Clear(g_c), s	3.8	31.3	0.0	6.0	9.7	0.0	19.1	5.5	0.0	3.0	5.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	389	1365	425	178	551	469	747	1825	0	489	1336	0
V/C Ratio(X)	0.19	0.93	0.00	0.66	0.33	0.00	0.58	0.22	0.00	0.14	0.18	0.00
Avail Cap(c_a), veh/h	389	1387	432	294	682	579	962	1825	0	495	1336	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.00	0.54	0.54	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.0	46.5	0.0	35.0	35.9	0.0	15.8	11.1	0.0	23.3	21.7	0.0
Incr Delay (d2), s/veh	0.2	10.9	0.0	2.3	0.1	0.0	0.7	0.3	0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	22.8	0.0	5.2	7.8	0.0	14.5	5.0	0.0	2.7	4.5	0.0
LnGrp Delay(d),s/veh	33.2	57.5	0.0	37.3	36.0	0.0	16.5	11.4	0.0	23.4	22.0	0.0
LnGrp LOS	C	E		D	D		B	B		C	C	
Approach Vol, veh/h		1340			298			835			314	
Approach Delay, s/veh		56.1			36.5			14.1			22.3	
Approach LOS		E			D			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	71.4	11.6	39.4	25.4	53.6	8.0	43.0
Change Period (Y+Rc), s	3.0	5.0	3.5	* 4.9	3.0	5.0	3.0	* 4.9
Max Green Setting (Gmax), s	5.0	57.0	16.5	* 35	38.0	24.0	5.0	* 47
Max Q Clear Time (g_c+I1), s	5.0	7.5	8.0	33.3	21.1	7.0	5.8	11.7
Green Ext Time (p_c), s	0.0	2.4	0.2	1.3	1.3	1.1	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
204: Brickell Ave & SW 26th Rd/Rickenbacker Causeway

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	964	104	0	410	395	0	357	385	162	1322	6
Future Volume (veh/h)	210	964	104	0	410	395	0	357	385	162	1322	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	0	1881	1881	0	1881	1881	1881	1881	1900
Adj Flow Rate, veh/h	226	1037	0	0	441	0	0	384	414	174	1422	0
Adj No. of Lanes	1	4	1	0	2	1	0	2	1	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	0	1	1	0	1	1	1	1	1
Cap, veh/h	296	2026	501	0	524	235	0	1690	756	225	2087	0
Arrive On Green	0.12	0.31	0.00	0.00	0.15	0.00	0.00	0.63	0.63	0.09	0.78	0.00
Sat Flow, veh/h	1792	6471	1599	0	3668	1599	0	3668	1599	3476	3668	0
Grp Volume(v), veh/h	226	1037	0	0	441	0	0	384	414	174	1422	0
Grp Sat Flow(s),veh/h/ln	1792	1618	1599	0	1787	1599	0	1787	1599	1738	1787	0
Q Serve(g_s), s	13.5	17.0	0.0	0.0	15.6	0.0	0.0	6.0	19.1	6.4	24.5	0.0
Cycle Q Clear(g_c), s	13.5	17.0	0.0	0.0	15.6	0.0	0.0	6.0	19.1	6.4	24.5	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	296	2026	501	0	524	235	0	1690	756	225	2087	0
V/C Ratio(X)	0.76	0.51	0.00	0.00	0.84	0.00	0.00	0.23	0.55	0.77	0.68	0.00
Avail Cap(c_a), veh/h	370	2598	642	0	693	310	0	1690	756	294	2087	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	0.56	0.56	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.8	36.5	0.0	0.0	54.0	0.0	0.0	13.8	16.3	58.5	8.8	0.0
Incr Delay (d2), s/veh	3.0	0.1	0.0	0.0	6.5	0.0	0.0	0.3	2.8	6.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	11.0	0.0	0.0	12.9	0.0	0.0	5.5	13.9	5.8	18.0	0.0
LnGrp Delay(d),s/veh	42.8	36.6	0.0	0.0	60.5	0.0	0.0	14.2	19.1	64.8	10.6	0.0
LnGrp LOS	D	D			E			B	B	E	B	
Approach Vol, veh/h		1263			441			798			1596	
Approach Delay, s/veh		37.7			60.5			16.7			16.5	
Approach LOS		D			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	14.4	68.1		47.5		82.5	21.6	25.9
Change Period (Y+Rc), s	6.0	6.6		* 6.8		6.6	6.0	* 6.8
Max Green Setting (Gmax), s	11.0	47.4		* 52		64.4	21.0	* 25
Max Q Clear Time (g_c+I1), s	8.4	21.1		19.0		26.5	15.5	17.6
Green Ext Time (p_c), s	0.1	1.1		7.3		5.0	0.2	1.5

Intersection Summary			
HCM 2010 Ctrl Delay		27.8	
HCM 2010 LOS		C	

Notes

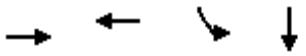
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
205: SB Off-Ramp & SW 25th Rd

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	393	13	44	625	0	0	0	0	527	2065	384
Future Volume (vph)	0	393	13	44	625	0	0	0	0	527	2065	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5					5.0	5.0	
Lane Util. Factor		*0.63			0.95					1.00	0.91	
Frt		1.00			1.00					1.00	0.98	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		2359			3563					1787	5015	
Flt Permitted		1.00			0.80					0.95	1.00	
Satd. Flow (perm)		2359			2843					1787	5015	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	409	14	46	651	0	0	0	0	549	2151	400
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	422	0	0	697	0	0	0	0	549	2531	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		8			4					2	2	
Permitted Phases				4								
Actuated Green, G (s)		64.5			35.1					56.0	56.0	
Effective Green, g (s)		64.5			35.1					56.0	56.0	
Actuated g/C Ratio		0.50			0.27					0.43	0.43	
Clearance Time (s)		4.5			4.5					5.0	5.0	
Vehicle Extension (s)		2.5			2.5					1.0	1.0	
Lane Grp Cap (vph)		1170			767					769	2160	
v/s Ratio Prot		c0.18								0.31	c0.50	
v/s Ratio Perm					c0.25							
v/c Ratio		0.36			0.91					0.71	1.17	
Uniform Delay, d1		20.1			45.9					30.4	37.0	
Progression Factor		1.00			0.50					1.00	1.00	
Incremental Delay, d2		0.1			10.6					5.6	82.5	
Delay (s)		20.2			33.5					36.0	119.5	
Level of Service		C			C					D	F	
Approach Delay (s)		20.2			33.5			0.0			104.7	
Approach LOS		C			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	84.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	423	697	549	2551
v/c Ratio	0.36	0.91	0.71	1.17
Control Delay	21.2	36.0	36.8	116.1
Queue Delay	0.0	48.6	48.8	0.0
Total Delay	21.2	84.6	85.6	116.1
Queue Length 50th (ft)	168	175	375	~934
Queue Length 95th (ft)	229	m#378	515	#1023
Internal Link Dist (ft)	411	125		410
Turn Bay Length (ft)				
Base Capacity (vph)	1170	789	769	2179
Starvation Cap Reductn	0	191	0	0
Spillback Cap Reductn	53	0	265	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	1.17	1.09	1.17

Intersection Summary

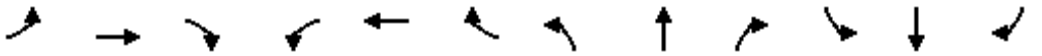
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
206: NB On-Ramp & SW 25th Rd

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	757	162	0	0	412	752	256	428	4	0	0	0
Future Volume (vph)	757	162	0	0	412	752	256	428	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.0		5.0				
Lane Util. Factor	0.95	0.95			1.00	1.00		0.95				
Frt	1.00	1.00			1.00	0.85		1.00				
Flt Protected	0.95	0.97			1.00	1.00		0.98				
Satd. Flow (prot)	1698	1730			1881	1599		3506				
Flt Permitted	0.16	0.18			1.00	1.00		0.98				
Satd. Flow (perm)	288	320			1881	1599		3506				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	823	176	0	0	448	817	278	465	4	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	477	522	0	0	448	817	0	746	0	0	0	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA			NA	Free	Split	NA				
Protected Phases	3	8			4		6	6				
Permitted Phases	8					Free						
Actuated Green, G (s)	65.5	65.5			35.1	130.0		56.0				
Effective Green, g (s)	65.5	65.5			35.1	130.0		56.0				
Actuated g/C Ratio	0.50	0.50			0.27	1.00		0.43				
Clearance Time (s)	3.5	4.5			4.5			5.0				
Vehicle Extension (s)	2.0	2.5			2.5			1.0				
Lane Grp Cap (vph)	426	442			507	1599		1510				
v/s Ratio Prot	0.22	c0.24			0.24			0.21				
v/s Ratio Perm	0.34	c0.36				c0.51						
v/c Ratio	1.12	1.18			0.88	0.51		0.49				
Uniform Delay, d1	44.4	32.2			45.5	0.0		26.8				
Progression Factor	1.25	1.24			1.00	1.00		0.80				
Incremental Delay, d2	77.3	99.9			16.5	1.2		1.0				
Delay (s)	132.7	139.8			62.0	1.2		22.4				
Level of Service	F	F			E	A		C				
Approach Delay (s)		136.4			22.7			22.4			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	60.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	477	522	448	817	747
v/c Ratio	1.12	1.22	0.88	0.51	0.49
Control Delay	127.2	161.3	65.3	1.2	22.6
Queue Delay	0.5	1.3	50.9	0.0	0.2
Total Delay	127.7	162.6	116.2	1.2	22.7
Queue Length 50th (ft)	~458	~549	359	0	167
Queue Length 95th (ft)	#717	#827	#537	0	m251
Internal Link Dist (ft)		125	258		245
Turn Bay Length (ft)					
Base Capacity (vph)	426	428	522	1599	1510
Starvation Cap Reductn	21	54	0	0	0
Spillback Cap Reductn	0	0	115	0	172
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	1.40	1.10	0.51	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
301: SW 5th Ave & SW 8th St

2045 Build Scenario
Timing Plan: PM Peak Hour

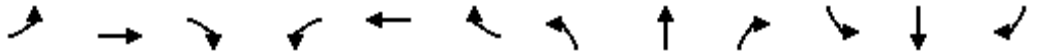
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	1198	514	0	0	0	0	173	409	0	0	0
Future Volume (veh/h)	167	1198	514	0	0	0	0	173	409	0	0	0
Number	1	6	16				7	4	14			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1863	1900				0	1863	1900			
Adj Flow Rate, veh/h	186	1331	571				0	192	454			
Adj No. of Lanes	0	3	0				0	1	0			
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90			
Percent Heavy Veh, %	2	2	2				0	2	2			
Cap, veh/h	221	1354	573				0	203	480			
Arrive On Green	0.59	0.59	0.59				0.00	0.41	0.41			
Sat Flow, veh/h	419	3034	1285				0	493	1165			
Grp Volume(v), veh/h	767	669	653				0	0	646			
Grp Sat Flow(s),veh/h/ln	1727	1543	1468				0	0	1657			
Q Serve(g_s), s	57.3	54.1	57.5				0.0	0.0	48.8			
Cycle Q Clear(g_c), s	57.3	54.1	57.5				0.0	0.0	48.8			
Prop In Lane	0.24		0.87				0.00		0.70			
Lane Grp Cap(c), veh/h	805	688	655				0	0	683			
V/C Ratio(X)	0.95	0.97	1.00				0.00	0.00	0.95			
Avail Cap(c_a), veh/h	805	688	655				0	0	765			
HCM Platoon Ratio	1.33	1.33	1.33				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00			
Uniform Delay (d), s/veh	26.3	25.6	26.3				0.0	0.0	36.8			
Incr Delay (d2), s/veh	22.1	28.0	34.3				0.0	0.0	19.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	41.0	36.7	38.2				0.0	0.0	34.2			
LnGrp Delay(d),s/veh	48.4	53.6	60.6				0.0	0.0	56.0			
LnGrp LOS	D	D	E						E			
Approach Vol, veh/h		2088						646				
Approach Delay, s/veh		53.9						56.0				
Approach LOS		D						E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				59.6		64.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				60.0		58.0		
Max Q Clear Time (g_c+I1), s				50.8		59.5		
Green Ext Time (p_c), s				2.7		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	54.4
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
302: SW 4th Ave & SW 8th St

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1714	174	0	0	0	0	0	0	795	509	0
Future Volume (veh/h)	0	1714	174	0	0	0	0	0	0	795	509	0
Number	5	2	12							7	4	14
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900							1863	1863	0
Adj Flow Rate, veh/h	0	1884	191							874	559	0
Adj No. of Lanes	0	4	0							3	1	0
Peak Hour Factor	0.91	0.91	0.91							0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2							2	2	0
Cap, veh/h	0	3582	363							0	502	0
Arrive On Green	0.00	0.84	0.84							0.27	0.27	0.00
Sat Flow, veh/h	0	6031	574							0	1863	0
Grp Volume(v), veh/h	0	1488	587							0	559	0
Grp Sat Flow(s),veh/h/ln	0	1490	1762							0	1863	0
Q Serve(g_s), s	0.0	12.3	12.3							0.0	35.0	0.0
Cycle Q Clear(g_c), s	0.0	12.3	12.3							0.0	35.0	0.0
Prop In Lane	0.00		0.33							0.00		0.00
Lane Grp Cap(c), veh/h	0	2830	1115							0	502	0
V/C Ratio(X)	0.00	0.53	0.53							0.00	1.11	0.00
Avail Cap(c_a), veh/h	0	2830	1115							0	502	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							0.00	0.43	0.00
Uniform Delay (d), s/veh	0.0	4.7	4.7							0.0	47.5	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.8							0.0	63.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	8.8	10.5							0.0	48.3	0.0
LnGrp Delay(d),s/veh	0.0	5.4	6.5							0.0	111.3	0.0
LnGrp LOS		A	A								F	
Approach Vol, veh/h		2075									559	
Approach Delay, s/veh		5.7									111.3	
Approach LOS		A									F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		89.0		41.0				
Change Period (Y+Rc), s		* 6.7		6.0				
Max Green Setting (Gmax), s		* 82		35.0				
Max Q Clear Time (g_c+I1), s		14.3		37.0				
Green Ext Time (p_c), s		17.1		0.0				

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
304: SW 3rd Ave & SW 8th St

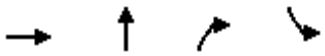
2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1662	0	0	0	0	0	284	635	17	0	0
Future Volume (vph)	33	1662	0	0	0	0	0	284	635	17	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0						6.0	6.0	6.0		
Lane Util. Factor		0.91						1.00	1.00	1.00		
Frt		1.00						1.00	0.85	1.00		
Flt Protected		1.00						1.00	1.00	0.95		
Satd. Flow (prot)		5080						1863	1583	1770		
Flt Permitted		1.00						1.00	1.00	0.50		
Satd. Flow (perm)		5080						1863	1583	925		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	35	1787	0	0	0	0	0	305	683	18	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	13	0	0	0
Lane Group Flow (vph)	0	1822	0	0	0	0	0	305	670	18	0	0
Turn Type	Perm	NA						NA	Perm	Perm		
Protected Phases		6						4				
Permitted Phases	6								4	8		
Actuated Green, G (s)		57.5						60.5	60.5	60.5		
Effective Green, g (s)		57.5						60.5	60.5	60.5		
Actuated g/C Ratio		0.44						0.47	0.47	0.47		
Clearance Time (s)		6.0						6.0	6.0	6.0		
Vehicle Extension (s)		2.5						2.5	2.5	2.5		
Lane Grp Cap (vph)		2246						867	736	430		
v/s Ratio Prot								0.16				
v/s Ratio Perm		0.36							c0.42	0.02		
v/c Ratio		0.81						0.35	0.91	0.04		
Uniform Delay, d1		31.5						22.2	32.2	18.9		
Progression Factor		1.10						1.00	1.00	1.54		
Incremental Delay, d2		2.9						0.2	15.1	0.0		
Delay (s)		37.6						22.4	47.3	29.2		
Level of Service		D						C	D	C		
Approach Delay (s)		37.6			0.0			39.6			29.2	
Approach LOS		D			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
304: SW 3rd Ave & SW 8th St



Lane Group	EBT	NBT	NBR	SBL
Lane Group Flow (vph)	1822	305	683	18
v/c Ratio	0.81	0.35	0.91	0.04
Control Delay	39.0	22.8	48.0	26.6
Queue Delay	2.3	0.1	0.0	0.0
Total Delay	41.3	22.9	48.0	26.6
Queue Length 50th (ft)	578	153	485	8
Queue Length 95th (ft)	527	215	#717	33
Internal Link Dist (ft)	147	240		
Turn Bay Length (ft)				55
Base Capacity (vph)	2245	931	804	463
Starvation Cap Reductn	287	0	0	0
Spillback Cap Reductn	0	94	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.93	0.36	0.85	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
305: SW 2nd Ave & SW 8th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	1249	413	0	0	0	0	462	46	229	596	0
Future Volume (veh/h)	405	1249	413	0	0	0	0	462	46	229	596	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900				0	1827	1900	1827	1827	0
Adj Flow Rate, veh/h	418	1288	426				0	476	47	236	614	0
Adj No. of Lanes	0	4	0				0	3	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	4	0				0	4	4	4	4	0
Cap, veh/h	453	1513	507				0	2096	204	457	955	0
Arrive On Green	0.13	0.13	0.13				0.00	0.45	0.45	0.08	1.00	0.00
Sat Flow, veh/h	1191	3977	1333				0	4786	450	1740	1827	0
Grp Volume(v), veh/h	620	1003	509				0	341	182	236	614	0
Grp Sat Flow(s),veh/h/ln	1767	1571	1592				0	1663	1747	1740	1827	0
Q Serve(g_s), s	45.1	40.6	40.6				0.0	8.1	8.3	5.0	0.0	0.0
Cycle Q Clear(g_c), s	45.1	40.6	40.6				0.0	8.1	8.3	5.0	0.0	0.0
Prop In Lane	0.67		0.84				0.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	672	1195	605				0	1508	792	457	955	0
V/C Ratio(X)	0.92	0.84	0.84				0.00	0.23	0.23	0.52	0.64	0.00
Avail Cap(c_a), veh/h	689	1226	621				0	1508	792	457	955	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.44	0.44	0.44				0.00	1.00	1.00	0.26	0.26	0.00
Uniform Delay (d), s/veh	54.9	53.0	53.0				0.0	21.6	21.7	23.0	0.0	0.0
Incr Delay (d2), s/veh	9.1	2.2	4.4				0.0	0.3	0.7	0.1	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	29.1	22.7	23.4				0.0	6.9	7.5	5.6	0.4	0.0
LnGrp Delay(d),s/veh	64.1	55.2	57.3				0.0	22.0	22.4	23.1	0.9	0.0
LnGrp LOS	E	E	E					C	C	C	A	
Approach Vol, veh/h		2132						523			850	
Approach Delay, s/veh		58.3						22.1			7.0	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	9.0	65.2		55.8		74.2		
Change Period (Y+Rc), s	4.0	* 6.3		* 6.3		* 6.3		
Max Green Setting (Gmax), s	5.0	* 58		* 51		* 67		
Max Q Clear Time (g_c+I1), s	7.0	10.3		47.1		2.0		
Green Ext Time (p_c), s	0.0	1.3		2.3		1.5		

Intersection Summary	
HCM 2010 Ctrl Delay	40.5
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBT	SBT	SWL	SWR
Lane Configurations					
Traffic Volume (vph)	263	1183	379	662	1579
Future Volume (vph)	263	1183	379	662	1579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	7.2	7.0	7.0
Lane Util. Factor	0.91	0.91	0.95	1.00	0.88
Frt	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1610	3386	3539	1770	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1610	3386	3539	1770	2787
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	268	1207	387	676	1611
RTOR Reduction (vph)	111	70	0	0	0
Lane Group Flow (vph)	130	1164	387	676	1611
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	4	3	
Permitted Phases	2				3
Actuated Green, G (s)	33.3	33.3	12.0	63.0	63.0
Effective Green, g (s)	33.3	33.3	12.0	63.0	63.0
Actuated g/C Ratio	0.26	0.26	0.09	0.49	0.49
Clearance Time (s)	6.5	6.5	7.2	7.0	7.0
Vehicle Extension (s)	1.0	1.0	2.5	3.0	3.0
Lane Grp Cap (vph)	415	874	329	864	1361
v/s Ratio Prot			c0.11	0.38	
v/s Ratio Perm	0.08	0.34			c0.58
v/c Ratio	0.31	1.33	1.18	0.78	1.18
Uniform Delay, d1	38.6	47.9	58.5	27.3	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	156.9	106.5	4.7	90.4
Delay (s)	40.6	204.8	165.0	32.0	123.4
Level of Service	D	F	F	C	F
Approach Delay (s)		178.0	165.0	96.4	
Approach LOS		F	F	F	

Intersection Summary			
HCM 2000 Control Delay	131.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	129.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	114.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues
306: SW 4th Ave & SW 7th St

Lane Group	WBL	WBT	SBT	SWL	SWR
Lane Group Flow (vph)	241	1234	387	676	1611
v/c Ratio	0.46	1.31	1.18	0.78	1.18
Control Delay	18.3	181.9	156.3	35.2	121.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	181.9	156.3	35.2	121.8
Queue Length 50th (ft)	67	~696	~203	456	~918
Queue Length 95th (ft)	154	#842	#308	626	#1069
Internal Link Dist (ft)		269	266	601	
Turn Bay Length (ft)					
Base Capacity (vph)	526	944	329	864	1361
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	1.31	1.18	0.78	1.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
307: SW 3rd Ave & SW 7th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	1139	13	307	10	0	0	0	0
Future Volume (veh/h)	0	0	0	17	1139	13	307	10	0	0	0	0
Number				5	2	12	7	4	14			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				1900	1900	1900	1900	1900	0			
Adj Flow Rate, veh/h				18	1174	13	316	10	0			
Adj No. of Lanes				0	3	0	1	1	0			
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %				0	0	0	0	0	0			
Cap, veh/h				60	3636	40	402	364	0			
Arrive On Green				0.95	0.95	0.95	0.19	0.19	0.00			
Sat Flow, veh/h				44	5079	56	1810	1900	0			
Grp Volume(v), veh/h				439	366	400	316	10	0			
Grp Sat Flow(s),veh/h/ln				1886	1573	1719	1810	1900	0			
Q Serve(g_s), s				0.0	2.1	2.1	22.2	0.6	0.0			
Cycle Q Clear(g_c), s				2.1	2.1	2.1	22.2	0.6	0.0			
Prop In Lane				0.04		0.03	1.00		0.00			
Lane Grp Cap(c), veh/h				1379	1127	1231	402	364	0			
V/C Ratio(X)				0.32	0.32	0.32	0.79	0.03	0.00			
Avail Cap(c_a), veh/h				1379	1127	1231	932	921	0			
HCM Platoon Ratio				1.33	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)				1.00	1.00	1.00	0.94	0.94	0.00			
Uniform Delay (d), s/veh				0.9	0.9	0.9	51.5	42.7	0.0			
Incr Delay (d2), s/veh				0.6	0.8	0.7	2.4	0.0	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				2.1	1.8	1.9	16.8	0.5	0.0			
LnGrp Delay(d),s/veh				1.5	1.7	1.6	53.9	42.7	0.0			
LnGrp LOS				A	A	A	D	D				
Approach Vol, veh/h					1205			326				
Approach Delay, s/veh					1.6			53.5				
Approach LOS					A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		99.1		30.9				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		55.0		63.0				
Max Q Clear Time (g_c+I1), s		4.1		24.2				
Green Ext Time (p_c), s		2.8		0.7				

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
308: SW 2nd Ave & SW 7th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	110	1198	290	181	686	0	0	715	416
Future Volume (veh/h)	0	0	0	110	1198	290	181	686	0	0	715	416
Number				5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1881	1900	1881	1881	0	0	1881	1900
Adj Flow Rate, veh/h				122	1331	322	201	762	0	0	794	462
Adj No. of Lanes				0	3	0	1	2	0	0	2	0
Peak Hour Factor				0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %				0	1	0	1	1	0	0	1	1
Cap, veh/h				149	1724	431	225	1685	0	0	756	436
Arrive On Green				0.58	0.58	0.58	0.19	0.94	0.00	0.00	0.35	0.35
Sat Flow, veh/h				342	3951	989	1792	3668	0	0	2279	1261
Grp Volume(v), veh/h				664	555	556	201	762	0	0	648	608
Grp Sat Flow(s),veh/h/ln				1864	1712	1707	1792	1787	0	0	1787	1659
Q Serve(g_s), s				37.0	31.1	31.3	10.1	2.8	0.0	0.0	45.0	45.0
Cycle Q Clear(g_c), s				37.0	31.1	31.3	10.1	2.8	0.0	0.0	45.0	45.0
Prop In Lane				0.18		0.58	1.00		0.00	0.00		0.76
Lane Grp Cap(c), veh/h				813	747	745	225	1685	0	0	619	574
V/C Ratio(X)				0.82	0.74	0.75	0.89	0.45	0.00	0.00	1.05	1.06
Avail Cap(c_a), veh/h				813	747	745	400	2035	0	0	619	574
HCM Platoon Ratio				1.33	1.33	1.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.1	21.9	22.0	30.9	2.0	0.0	0.0	42.5	42.5
Incr Delay (d2), s/veh				8.9	6.6	6.7	5.1	0.1	0.0	0.0	49.4	54.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				28.3	22.4	22.5	11.6	1.9	0.0	0.0	55.2	52.5
LnGrp Delay(d),s/veh				32.1	28.5	28.7	36.0	2.1	0.0	0.0	91.9	96.5
LnGrp LOS				C	C	C	D	A			F	F
Approach Vol, veh/h					1775			963			1256	
Approach Delay, s/veh					29.9			9.2			94.1	
Approach LOS					C			A			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		62.7		67.3			16.3	51.0
Change Period (Y+Rc), s		6.0		6.0			4.0	6.0
Max Green Setting (Gmax), s		44.0		74.0			25.0	45.0
Max Q Clear Time (g_c+I1), s		39.0		4.8			12.1	47.0
Green Ext Time (p_c), s		2.5		2.2			0.2	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.1
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
401: Miami Ave & SW 3rd St/SE 4th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	194	44	0	0	0	200	0	967	1249	939	213
Future Volume (vph)	0	194	44	0	0	0	200	0	967	1249	939	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0					5.0		4.0	5.0	5.0	
Lane Util. Factor		0.95					1.00		0.88	0.97	0.95	
Frt		0.97					1.00		0.85	1.00	0.97	
Flt Protected		1.00					0.95		1.00	0.95	1.00	
Satd. Flow (prot)		3441					1770		2787	3433	3441	
Flt Permitted		1.00					0.95		1.00	0.95	1.00	
Satd. Flow (perm)		3441					1770		2787	3433	3441	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	228	52	0	0	0	235	0	1138	1469	1105	251
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	138	19	0
Lane Group Flow (vph)	0	260	0	0	0	0	235	0	1138	1331	1337	0
Turn Type		NA					Prot		Free	Split	NA	
Protected Phases		8					1			2 7	2 7	
Permitted Phases									Free			
Actuated Green, G (s)		29.0					11.0		100.0	45.0	45.0	
Effective Green, g (s)		29.0					11.0		100.0	45.0	45.0	
Actuated g/C Ratio		0.29					0.11		1.00	0.45	0.45	
Clearance Time (s)		5.0					5.0					
Vehicle Extension (s)		2.5					2.0					
Lane Grp Cap (vph)		997					194		2787	1544	1548	
v/s Ratio Prot		0.08					c0.13			0.39	c0.39	
v/s Ratio Perm									c0.41			
v/c Ratio		0.26					1.21		0.41	0.86	0.86	
Uniform Delay, d1		27.3					44.5		0.0	24.7	24.7	
Progression Factor		1.00					1.00		1.00	1.20	1.17	
Incremental Delay, d2		0.1					133.1		0.4	2.3	2.3	
Delay (s)		27.4					177.6		0.4	32.0	31.2	
Level of Service		C					F		A	C	C	
Approach Delay (s)		27.4			0.0			30.8			31.6	
Approach LOS		C			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	NBL	NBR	SBL	SBT
Lane Group Flow (vph)	280	235	1138	1469	1356
v/c Ratio	0.28	1.21	0.41	0.87	0.87
Control Delay	25.4	172.8	0.4	28.1	31.8
Queue Delay	0.0	0.0	0.0	48.8	50.0
Total Delay	25.4	172.8	0.4	76.8	81.8
Queue Length 50th (ft)	64	~184	0	364	384
Queue Length 95th (ft)	92	#308	0	m343	m366
Internal Link Dist (ft)	113				39
Turn Bay Length (ft)					
Base Capacity (vph)	1017	194	2787	1682	1567
Starvation Cap Reductn	0	0	0	790	844
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	1.21	0.41	1.65	1.88

Intersection Summary

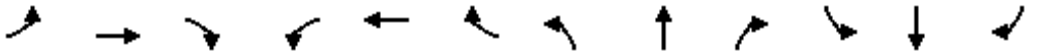
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
402: SE 4th St & SE 1st Place

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1749	0	0	0	0	0	0	21	0	0	0
Future Volume (veh/h)	0	1749	0	0	0	0	0	0	21	0	0	0
Number	1	6	16				7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	0				0	0	1881	1881	0	0
Adj Flow Rate, veh/h	0	1922	0				0	0	23	0	0	0
Adj No. of Lanes	0	3	0				0	0	1	1	0	0
Peak Hour Factor	0.91	0.91	0.91				0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	0				0	0	1	1	0	0
Cap, veh/h	0	0	0				0	0	0	2	0	0
Arrive On Green	0.00	0.00	0.00				0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h		0						0		1792	0	
Grp Volume(v), veh/h		0.0						0.0		0	0.0	
Grp Sat Flow(s),veh/h/ln										1792		
Q Serve(g_s), s										0.0		
Cycle Q Clear(g_c), s										0.0		
Prop In Lane										1.00		
Lane Grp Cap(c), veh/h										2		
V/C Ratio(X)										0.00		
Avail Cap(c_a), veh/h										179		
HCM Platoon Ratio										1.00		
Upstream Filter(I)										0.00		
Uniform Delay (d), s/veh										0.0		
Incr Delay (d2), s/veh										0.0		
Initial Q Delay(d3),s/veh										0.0		
%ile BackOfQ(95%),veh/ln										0.0		
LnGrp Delay(d),s/veh										0.0		
LnGrp LOS												
Approach Vol, veh/h												
Approach Delay, s/veh												
Approach LOS												

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3					
Phs Duration (G+Y+Rc), s			0.0					
Change Period (Y+Rc), s			5.0					
Max Green Setting (Gmax), s			9.0					
Max Q Clear Time (g_c+I1), s			0.0					
Green Ext Time (p_c), s			0.0					

Intersection Summary	
HCM 2010 Ctrl Delay	0.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
403: SE 2nd Ave & SR 970 Off-Ramp/SE 3rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	627	566	0	0	0	0	0	0	104	1177	0
Future Volume (veh/h)	0	627	566	0	0	0	0	0	0	104	1177	0
Number	1	6	16							3	8	18
Initial Q (Qb), veh	0	0	0							0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00							1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00							1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881							1900	1881	0
Adj Flow Rate, veh/h	0	956	432							113	1279	0
Adj No. of Lanes	0	2	1							0	3	0
Peak Hour Factor	0.92	0.92	0.92							0.92	0.92	0.92
Percent Heavy Veh, %	0	1	1							1	1	0
Cap, veh/h	0	1135	483							168	1555	0
Arrive On Green	0.00	0.40	0.40							0.34	0.34	0.00
Sat Flow, veh/h	0	3762	1599							360	4674	0
Grp Volume(v), veh/h	0	956	432							508	884	0
Grp Sat Flow(s),veh/h/ln	0	1881	1599							1764	1558	0
Q Serve(g_s), s	0.0	23.0	25.2							23.9	26.0	0.0
Cycle Q Clear(g_c), s	0.0	23.0	25.2							26.5	26.0	0.0
Prop In Lane	0.00		1.00							0.22		0.00
Lane Grp Cap(c), veh/h	0	1135	483							651	1072	0
V/C Ratio(X)	0.00	0.84	0.90							0.78	0.82	0.00
Avail Cap(c_a), veh/h	0	1859	790							740	1231	0
HCM Platoon Ratio	1.00	1.33	1.33							1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00							1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	27.8	28.5							30.1	30.0	0.0
Incr Delay (d2), s/veh	0.0	7.6	21.8							4.5	4.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0							0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	19.0	20.1							19.7	17.4	0.0
LnGrp Delay(d),s/veh	0.0	35.4	50.3							34.6	34.0	0.0
LnGrp LOS		D	D							C	C	
Approach Vol, veh/h		1388									1392	
Approach Delay, s/veh		40.0									34.2	
Approach LOS		D									C	

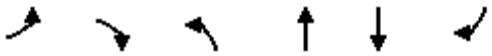
Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						35.8		39.9
Change Period (Y+Rc), s						5.6		5.5
Max Green Setting (Gmax), s						49.4		39.5
Max Q Clear Time (g_c+I1), s						27.2		28.5
Green Ext Time (p_c), s						2.9		5.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
404: Miami Ave & SR 970 Off-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	2086	0	0	316	0
Future Volume (vph)	0	2086	0	0	316	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	
Lane Util. Factor		0.88			0.91	
Frt		0.85			1.00	
Flt Protected		1.00			1.00	
Satd. Flow (prot)		2842			5187	
Flt Permitted		1.00			1.00	
Satd. Flow (perm)		2842			5187	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	2219	0	0	336	0
RTOR Reduction (vph)	0	62	0	0	0	0
Lane Group Flow (vph)	0	2157	0	0	336	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		custom			NA	
Protected Phases		1 4			2	
Permitted Phases						
Actuated Green, G (s)		70.0			20.0	
Effective Green, g (s)		70.0			20.0	
Actuated g/C Ratio		0.70			0.20	
Clearance Time (s)					5.0	
Vehicle Extension (s)					1.0	
Lane Grp Cap (vph)		1989			1037	
v/s Ratio Prot		c0.76			c0.06	
v/s Ratio Perm						
v/c Ratio		1.08			0.32	
Uniform Delay, d1		15.0			34.2	
Progression Factor		1.00			1.00	
Incremental Delay, d2		47.3			0.1	
Delay (s)		62.3			34.3	
Level of Service		E			C	
Approach Delay (s)	62.3			0.0	34.3	
Approach LOS	E			A	C	

Intersection Summary			
HCM 2000 Control Delay	58.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	SBT
Lane Group Flow (vph)	2219	336
v/c Ratio	1.08	0.32
Control Delay	62.1	35.2
Queue Delay	8.9	0.0
Total Delay	71.0	35.2
Queue Length 50th (ft)	~882	67
Queue Length 95th (ft)	#1034	95
Internal Link Dist (ft)		177
Turn Bay Length (ft)		
Base Capacity (vph)	2051	1037
Starvation Cap Reductn	0	0
Spillback Cap Reductn	676	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.61	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
406: Miami Ave & SE 2nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	135	1790	0	0	0	0	0	181	72
Future Volume (veh/h)	0	0	0	135	1790	0	0	0	0	0	181	72
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1900	0				0	1845	1900
Adj Flow Rate, veh/h				155	2057	0				0	208	83
Adj No. of Lanes				0	2	0				0	2	0
Peak Hour Factor				0.87	0.87	0.87				0.87	0.87	0.87
Percent Heavy Veh, %				0	0	0				0	3	3
Cap, veh/h				192	2174	0				0	519	200
Arrive On Green				0.67	0.67	0.00				0.00	0.28	0.28
Sat Flow, veh/h				226	3330	0				0	2565	955
Grp Volume(v), veh/h				1189	1023	0				0	145	146
Grp Sat Flow(s),veh/h/ln				1827	1643	0				0	1752	1676
Q Serve(g_s), s				57.9	54.5	0.0				0.0	6.7	7.1
Cycle Q Clear(g_c), s				61.4	54.5	0.0				0.0	6.7	7.1
Prop In Lane				0.13		0.00				0.00		0.57
Lane Grp Cap(c), veh/h				1265	1101	0				0	367	351
V/C Ratio(X)				0.94	0.93	0.00				0.00	0.40	0.41
Avail Cap(c_a), veh/h				1301	1133	0				0	367	351
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.33	1.33
Upstream Filter(I)				0.09	0.09	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				15.5	14.4	0.0				0.0	30.9	31.1
Incr Delay (d2), s/veh				1.6	1.5	0.0				0.0	3.2	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				33.7	27.1	0.0				0.0	6.4	6.6
LnGrp Delay(d),s/veh				17.1	15.9	0.0				0.0	34.1	34.6
LnGrp LOS				B	B						C	C
Approach Vol, veh/h					2212						291	
Approach Delay, s/veh					16.5						34.4	
Approach LOS					B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		27.0		73.0				
Change Period (Y+Rc), s		6.0		6.0				
Max Green Setting (Gmax), s		19.0		69.0				
Max Q Clear Time (g_c+I1), s		9.1		63.4				
Green Ext Time (p_c), s		0.5		3.7				

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
408: SE 1st Ave & SE 2nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	667	366	1313	473	0	0	0	0
Future Volume (veh/h)	0	0	0	0	667	366	1313	473	0	0	0	0
Number				7	4	14	1	6	16			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00			
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln				0	1900	1900	1900	1900	0			
Adj Flow Rate, veh/h				0	866	475	1509	1006	0			
Adj No. of Lanes				0	2	0	1	2	0			
Peak Hour Factor				0.77	0.77	0.77	0.87	0.47	0.77			
Percent Heavy Veh, %				0	0	0	0	0	0			
Cap, veh/h				0	724	392	1013	2022	0			
Arrive On Green				0.00	0.32	0.32	0.74	0.74	0.00			
Sat Flow, veh/h				0	2358	1225	1810	3705	0			
Grp Volume(v), veh/h				0	688	653	1509	1006	0			
Grp Sat Flow(s),veh/h/ln				0	1805	1684	1810	1805	0			
Q Serve(g_s), s				0.0	32.0	32.0	56.0	11.3	0.0			
Cycle Q Clear(g_c), s				0.0	32.0	32.0	56.0	11.3	0.0			
Prop In Lane				0.00		0.73	1.00		0.00			
Lane Grp Cap(c), veh/h				0	578	539	1013	2022	0			
V/C Ratio(X)				0.00	1.19	1.21	1.49	0.50	0.00			
Avail Cap(c_a), veh/h				0	578	539	1013	2022	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00			
Upstream Filter(I)				0.00	0.85	0.85	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	34.0	34.0	12.8	7.1	0.0			
Incr Delay (d2), s/veh				0.0	100.4	109.3	225.4	0.9	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln				0.0	57.6	56.1	162.8	9.6	0.0			
LnGrp Delay(d),s/veh				0.0	134.4	143.3	238.2	7.9	0.0			
LnGrp LOS					F	F	F	A				
Approach Vol, veh/h					1341			2515				
Approach Delay, s/veh					138.7			146.1				
Approach LOS					F			F				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		
Phs Duration (G+Y+Rc), s				38.0		62.0		
Change Period (Y+Rc), s				6.0		6.0		
Max Green Setting (Gmax), s				32.0		56.0		
Max Q Clear Time (g_c+I1), s				34.0		58.0		
Green Ext Time (p_c), s				0.0		0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	143.5
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
409: SE 2nd Ave & SE 2nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	770	434	0	0	0	0	0	611	350
Future Volume (veh/h)	0	0	0	770	434	0	0	0	0	0	611	350
Number				5	2	12				3	8	18
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	0				0	1863	1863
Adj Flow Rate, veh/h				846	477	0				0	671	385
Adj No. of Lanes				2	1	0				0	2	1
Peak Hour Factor				0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				2058	1080	0				0	1062	475
Arrive On Green				0.77	0.77	0.00				0.00	0.30	0.30
Sat Flow, veh/h				3548	1863	0				0	3632	1583
Grp Volume(v), veh/h				846	477	0				0	671	385
Grp Sat Flow(s),veh/h/ln				1774	1863	0				0	1770	1583
Q Serve(g_s), s				8.0	8.9	0.0				0.0	16.4	22.5
Cycle Q Clear(g_c), s				8.0	8.9	0.0				0.0	16.4	22.5
Prop In Lane				1.00		0.00				0.00		1.00
Lane Grp Cap(c), veh/h				2058	1080	0				0	1062	475
V/C Ratio(X)				0.41	0.44	0.00				0.00	0.63	0.81
Avail Cap(c_a), veh/h				2058	1080	0				0	1062	475
HCM Platoon Ratio				1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				5.7	5.8	0.0				0.0	30.2	32.4
Incr Delay (d2), s/veh				0.6	1.3	0.0				0.0	2.9	13.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				7.1	8.4	0.0				0.0	13.2	17.3
LnGrp Delay(d),s/veh				6.3	7.1	0.0				0.0	33.1	46.3
LnGrp LOS				A	A						C	D
Approach Vol, veh/h					1323						1056	
Approach Delay, s/veh					6.6						37.9	
Approach LOS					A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						8
Phs Duration (G+Y+Rc), s		64.0						36.0
Change Period (Y+Rc), s		6.0						6.0
Max Green Setting (Gmax), s		58.0						30.0
Max Q Clear Time (g_c+I1), s		10.9						24.5
Green Ext Time (p_c), s		1.7						2.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
501: NW 3rd Ct/SB On-Ramp/NW 3rd Ct & NW 2nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	14	32	634	0	0	0	0	0	29	1904	0
Future Volume (veh/h)	0	14	32	634	0	0	0	0	0	29	1904	0
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	0	0				1881	1881	0
Adj Flow Rate, veh/h	0	16	36	720	0	0				33	2164	0
Adj No. of Lanes	0	1	1	2	0	0				1	3	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	1	1	1	0	0				1	1	0
Cap, veh/h	0	132	112	793	0	0				1012	2901	0
Arrive On Green	0.00	0.07	0.07	0.23	0.00	0.00				0.19	0.19	0.00
Sat Flow, veh/h	0	1881	1599	3476	720					1792	5305	0
Grp Volume(v), veh/h	0	16	36	720	45.9					33	2164	0
Grp Sat Flow(s),veh/h/ln	0	1881	1599	1738	D					1792	1712	0
Q Serve(g_s), s	0.0	0.8	2.1	20.2						1.5	39.8	0.0
Cycle Q Clear(g_c), s	0.0	0.8	2.1	20.2						1.5	39.8	0.0
Prop In Lane	0.00		1.00	1.00						1.00		0.00
Lane Grp Cap(c), veh/h	0	132	112	793						1012	2901	0
V/C Ratio(X)	0.00	0.12	0.32	0.91						0.03	0.75	0.00
Avail Cap(c_a), veh/h	0	263	224	855						1012	2901	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00						0.33	0.33	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61						0.67	0.67	0.00
Uniform Delay (d), s/veh	0.0	43.6	44.2	37.6						18.3	33.9	0.0
Incr Delay (d2), s/veh	0.0	0.3	1.2	8.3						0.0	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0						0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.8	1.8	14.8						1.4	25.1	0.0
LnGrp Delay(d),s/veh	0.0	43.9	45.5	45.9						18.4	35.1	0.0
LnGrp LOS		D	D	D						B	D	
Approach Vol, veh/h		52									2197	
Approach Delay, s/veh		45.0									34.9	
Approach LOS		D									C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2					7	8
Phs Duration (G+Y+Rc), s		60.8					27.5	11.7
Change Period (Y+Rc), s		* 4.3					* 4.7	* 4.7
Max Green Setting (Gmax), s		* 48					* 25	* 14
Max Q Clear Time (g_c+I1), s		3.5					22.2	4.1
Green Ext Time (p_c), s		0.1					0.7	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

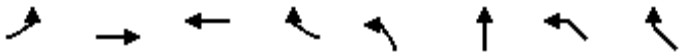
HCM Signalized Intersection Capacity Analysis
502: NB Off-Ramp & NW 3rd Ave & NW 2nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NWL	NWR	NWR2
Lane Configurations										
Traffic Volume (vph)	24	19	246	75	371	981	104	17	235	8
Future Volume (vph)	24	19	246	75	371	981	104	17	235	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.7	5.7	5.7	4.6	4.6		4.7	4.7	
Lane Util. Factor	1.00	1.00	0.95	0.95	*0.70	*0.70		1.00	0.95	
Frt	1.00	1.00	1.00	0.85	1.00	0.99		0.87	0.85	
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00		0.99	1.00	
Satd. Flow (prot)	1787	1881	1779	1519	1251	2596		1626	1519	
Flt Permitted	0.24	1.00	1.00	1.00	0.95	1.00		0.99	1.00	
Satd. Flow (perm)	442	1881	1779	1519	1251	2596		1626	1519	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	28	22	286	87	431	1141	121	20	273	9
RTOR Reduction (vph)	0	0	1	56	0	0	0	0	68	0
Lane Group Flow (vph)	28	22	294	22	431	1262	0	151	83	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA	NA	Perm	Perm	NA		Prot	Perm	
Protected Phases		8	4			5		6		
Permitted Phases	8			4	5				6	
Actuated Green, G (s)	19.0	19.0	19.0	19.0	50.8	50.8		15.2	15.2	
Effective Green, g (s)	19.0	19.0	19.0	19.0	50.8	50.8		15.2	15.2	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.51	0.51		0.15	0.15	
Clearance Time (s)	5.7	5.7	5.7	5.7	4.6	4.6		4.7	4.7	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	83	357	338	288	635	1318		247	230	
v/s Ratio Prot		0.01	c0.17			c0.49		c0.09		
v/s Ratio Perm	0.06			0.01	0.34				0.05	
v/c Ratio	0.34	0.06	0.87	0.08	0.68	0.96		0.61	0.36	
Uniform Delay, d1	35.1	33.2	39.3	33.3	18.5	23.6		39.6	38.0	
Progression Factor	0.52	0.51	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.0	20.3	0.0	2.3	15.5		10.8	4.4	
Delay (s)	19.2	16.9	59.6	33.3	20.7	39.0		50.4	42.4	
Level of Service	B	B	E	C	C	D		D	D	
Approach Delay (s)		18.2	54.1			34.4		46.4		
Approach LOS		B	D			C		D		

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
502: NB Off-Ramp & NW 3rd Ave & NW 2nd St



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NWL	NWR
Lane Group Flow (vph)	28	22	295	78	431	1262	151	151
v/c Ratio	0.34	0.06	0.87	0.23	0.68	0.96	0.61	0.51
Control Delay	28.8	16.3	64.7	11.6	24.9	40.8	53.7	27.2
Queue Delay	0.5	0.0	670.9	0.1	57.5	45.1	0.0	0.3
Total Delay	29.3	16.3	735.6	11.7	82.5	85.9	53.7	27.5
Queue Length 50th (ft)	12	9	189	5	278	519	93	44
Queue Length 95th (ft)	31	24	#286	40	411	#685	#186	105
Internal Link Dist (ft)		109	427			348	296	
Turn Bay Length (ft)				90				
Base Capacity (vph)	97	413	391	388	644	1337	247	298
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	7	0	391	36	326	398	0	14
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.05	295.00	0.22	1.36	1.34	0.61	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
503: NW 3rd Ct & NW 3rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	234	81	0	0	0	0	254	1699	0
Future Volume (veh/h)	0	0	0	234	81	0	0	0	0	254	1699	0
Number				7	4	14				5	2	12
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1863	1863	0				1863	1863	1900
Adj Flow Rate, veh/h				171	204	0				276	1847	0
Adj No. of Lanes				1	1	0				1	3	0
Peak Hour Factor				0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %				2	2	0				2	2	2
Cap, veh/h				497	522	0				1177	3168	0
Arrive On Green				0.28	0.28	0.00				0.83	0.83	0.00
Sat Flow, veh/h				1774	1863	0				1774	5253	0
Grp Volume(v), veh/h				171	204	0				276	1847	0
Grp Sat Flow(s),veh/h/ln				1774	1863	0				1774	1695	0
Q Serve(g_s), s				7.7	8.9	0.0				3.4	12.0	0.0
Cycle Q Clear(g_c), s				7.7	8.9	0.0				3.4	12.0	0.0
Prop In Lane				1.00		0.00				1.00		0.00
Lane Grp Cap(c), veh/h				497	522	0				1177	3168	0
V/C Ratio(X)				0.34	0.39	0.00				0.23	0.58	0.00
Avail Cap(c_a), veh/h				497	522	0				1177	3168	0
HCM Platoon Ratio				1.00	1.00	1.00				1.33	1.33	1.33
Upstream Filter(I)				0.53	0.53	0.00				1.00	1.00	0.00
Uniform Delay (d), s/veh				28.7	29.1	0.0				3.5	4.3	0.0
Incr Delay (d2), s/veh				1.0	1.2	0.0				0.5	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				6.3	7.3	0.0				3.1	9.4	0.0
LnGrp Delay(d),s/veh				29.7	30.3	0.0				4.0	5.1	0.0
LnGrp LOS				C	C					A	A	
Approach Vol, veh/h					375						2123	
Approach Delay, s/veh					30.0						4.9	
Approach LOS					C						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		67.0		33.0				
Change Period (Y+Rc), s		* 4.7		5.0				
Max Green Setting (Gmax), s		* 62		28.0				
Max Q Clear Time (g_c+I1), s		14.0		10.9				
Green Ext Time (p_c), s		7.4		1.2				

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
504: NW 3rd Ave & NW 3rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	196	0	0	238	378	76	1136	103	0	0	0
Future Volume (veh/h)	58	196	0	0	238	378	76	1136	103	0	0	0
Number	7	4	14	3	8	18	1	6	16			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1900	1900	1881	1881			
Adj Flow Rate, veh/h	64	215	0	0	262	415	84	1248	113			
Adj No. of Lanes	1	1	0	0	2	0	0	2	1			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	152	633	0	0	601	538	113	1755	885			
Arrive On Green	0.11	0.11	0.00	0.00	0.34	0.34	0.74	0.74	0.74			
Sat Flow, veh/h	767	1881	0	0	1881	1599	204	3172	1599			
Grp Volume(v), veh/h	64	215	0	0	262	415	769	563	113			
Grp Sat Flow(s),veh/h/ln	767	1881	0	0	1787	1599	1871	1505	1599			
Q Serve(g_s), s	8.3	10.6	0.0	0.0	11.4	23.3	24.0	19.6	2.1			
Cycle Q Clear(g_c), s	31.5	10.6	0.0	0.0	11.4	23.3	24.0	19.6	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	0.11		1.00			
Lane Grp Cap(c), veh/h	152	633	0	0	601	538	1035	833	885			
V/C Ratio(X)	0.42	0.34	0.00	0.00	0.44	0.77	0.74	0.68	0.13			
Avail Cap(c_a), veh/h	158	649	0	0	617	552	1035	833	885			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.96	0.96	0.00	0.00	1.00	1.00	0.39	0.39	0.39			
Uniform Delay (d), s/veh	55.1	34.2	0.0	0.0	25.8	29.7	9.1	8.5	6.2			
Incr Delay (d2), s/veh	0.7	0.1	0.0	0.0	0.4	6.2	1.9	1.7	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.2	9.3	0.0	0.0	9.6	16.7	16.1	11.3	1.6			
LnGrp Delay(d),s/veh	55.7	34.3	0.0	0.0	26.2	35.9	11.0	10.2	6.3			
LnGrp LOS	E	C			C	D	B	B	A			
Approach Vol, veh/h		279			677			1445				
Approach Delay, s/veh		39.2			32.1			10.3				
Approach LOS		D			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				39.2		60.8		39.2
Change Period (Y+Rc), s				5.5		5.5		5.5
Max Green Setting (Gmax), s				34.5		54.5		34.5
Max Q Clear Time (g_c+I1), s				33.5		26.0		25.3
Green Ext Time (p_c), s				0.1		3.6		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.8
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
601: NW 3rd Ct/SB Off-Ramp & NW 8th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	248	41	59	143	0	0	0	0	541	1327	133
Future Volume (veh/h)	0	248	41	59	143	0	0	0	0	541	1327	133
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	267	44	63	154	0				582	1427	143
Adj No. of Lanes	0	1	0	1	1	0				0	4	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	377	62	163	450	0				1124	3025	303
Arrive On Green	0.00	0.24	0.24	0.24	0.24	0.00				0.66	0.66	0.66
Sat Flow, veh/h	0	1560	257	1064	1863	0				1707	4595	461
Grp Volume(v), veh/h	0	0	311	63	154	0				606	993	553
Grp Sat Flow(s),veh/h/ln	0	0	1817	1064	1863	0				1777	1602	1781
Q Serve(g_s), s	0.0	0.0	15.7	5.8	6.8	0.0				17.7	15.4	15.4
Cycle Q Clear(g_c), s	0.0	0.0	15.7	21.4	6.8	0.0				17.7	15.4	15.4
Prop In Lane	0.00		0.14	1.00		0.00				0.96		0.26
Lane Grp Cap(c), veh/h	0	0	439	163	450	0				1170	2109	1173
V/C Ratio(X)	0.00	0.00	0.71	0.39	0.34	0.00				0.52	0.47	0.47
Avail Cap(c_a), veh/h	0	0	709	320	726	0				1170	2109	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.81	0.81	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	34.7	44.5	31.3	0.0				8.9	8.5	8.5
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.9	0.3	0.0				1.6	0.8	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	12.7	3.1	6.3	0.0				14.1	11.3	12.6
LnGrp Delay(d),s/veh	0.0	0.0	36.3	45.4	31.6	0.0				10.5	9.2	9.8
LnGrp LOS			D	D	C					B	A	A
Approach Vol, veh/h		311			217						2152	
Approach Delay, s/veh		36.3			35.6						9.7	
Approach LOS		D			D						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		70.8		29.2				29.2
Change Period (Y+Rc), s		5.0		5.0				5.0
Max Green Setting (Gmax), s		51.0		39.0				39.0
Max Q Clear Time (g_c+I1), s		19.7		23.4				17.7
Green Ext Time (p_c), s		7.2		0.7				1.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
602: NW 3rd Ave/NW 3rd Ave/NB On-Ramp & NW 8th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	358	430	0	0	173	307	29	1616	31	0	0	0
Future Volume (veh/h)	358	430	0	0	173	307	29	1616	31	0	0	0
Number	3	8	18	7	4	14	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1845	1845	1845			
Adj Flow Rate, veh/h	416	500	0	0	201	357	34	1879	36			
Adj No. of Lanes	1	1	0	0	1	0	1	3	1			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	355	1033	0	0	334	594	606	1737	541			
Arrive On Green	0.56	0.56	0.00	0.00	0.56	0.56	0.46	0.46	0.46			
Sat Flow, veh/h	840	1845	0	0	597	1060	1757	5036	1568			
Grp Volume(v), veh/h	416	500	0	0	0	558	34	1879	36			
Grp Sat Flow(s),veh/h/ln	840	1845	0	0	0	1658	1757	1679	1568			
Q Serve(g_s), s	33.7	16.4	0.0	0.0	0.0	22.3	1.1	34.5	1.3			
Cycle Q Clear(g_c), s	56.0	16.4	0.0	0.0	0.0	22.3	1.1	34.5	1.3			
Prop In Lane	1.00		0.00	0.00		0.64	1.00		1.00			
Lane Grp Cap(c), veh/h	355	1033	0	0	0	928	606	1737	541			
V/C Ratio(X)	1.17	0.48	0.00	0.00	0.00	0.60	0.06	1.08	0.07			
Avail Cap(c_a), veh/h	355	1033	0	0	0	928	606	1737	541			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33			
Upstream Filter(I)	0.55	0.55	0.00	0.00	0.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	36.6	13.3	0.0	0.0	0.0	14.6	18.0	27.1	18.1			
Incr Delay (d2), s/veh	93.7	0.1	0.0	0.0	0.0	1.0	0.0	47.3	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	34.2	11.7	0.0	0.0	0.0	15.6	0.9	42.3	1.0			
LnGrp Delay(d),s/veh	130.3	13.4	0.0	0.0	0.0	15.6	18.1	74.4	18.1			
LnGrp LOS	F	B				B	B	F	B			
Approach Vol, veh/h		916			558			1949				
Approach Delay, s/veh		66.5			15.6			72.4				
Approach LOS		E			B			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		39.0		61.0				61.0
Change Period (Y+Rc), s		4.5		5.0				5.0
Max Green Setting (Gmax), s		34.5		56.0				56.0
Max Q Clear Time (g_c+I1), s		36.5		24.3				58.0
Green Ext Time (p_c), s		0.0		3.6				0.0

Intersection Summary	
HCM 2010 Ctrl Delay	61.5
HCM 2010 LOS	E

HCM 2010 Signalized Intersection Summary
650: NW 32 Street & I 95 SB Ramp

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	471	875	1334	263	0	0	0	0	242	720	194
Future Volume (veh/h)	0	471	875	1334	263	0	0	0	0	242	720	194
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	491	0	1390	274	0				252	750	202
Adj No. of Lanes	0	2	1	2	1	0				1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	625	280	1494	1206	0				496	990	443
Arrive On Green	0.00	0.18	0.00	0.43	0.65	0.00				0.28	0.28	0.28
Sat Flow, veh/h	0	3632	1583	3442	1863	0				1774	3539	1583
Grp Volume(v), veh/h	0	491	0	1390	274	0				252	750	202
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1721	1863	0				1774	1770	1583
Q Serve(g_s), s	0.0	16.4	0.0	47.3	7.5	0.0				14.7	23.9	13.0
Cycle Q Clear(g_c), s	0.0	16.4	0.0	47.3	7.5	0.0				14.7	23.9	13.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	625	280	1494	1206	0				496	990	443
V/C Ratio(X)	0.00	0.79	0.00	0.93	0.23	0.00				0.51	0.76	0.46
Avail Cap(c_a), veh/h	0	1248	558	1632	1608	0				496	990	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	48.5	0.0	33.1	9.0	0.0				37.3	40.6	36.7
Incr Delay (d2), s/veh	0.0	2.2	0.0	9.5	0.1	0.0				3.7	5.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	12.9	0.0	32.5	6.9	0.0				12.3	18.2	10.1
LnGrp Delay(d),s/veh	0.0	50.8	0.0	42.6	9.1	0.0				41.0	46.0	40.0
LnGrp LOS		D		D	A					D	D	D
Approach Vol, veh/h		491			1664						1204	
Approach Delay, s/veh		50.8			37.1						44.0	
Approach LOS		D			D						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			58.1	26.3		39.0		84.3
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			58.5	43.5		34.5		106.5
Max Q Clear Time (g_c+I1), s			49.3	18.4		25.9		9.5
Green Ext Time (p_c), s			4.3	3.4		4.3		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	41.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
651: NW 6 Avenue & NW 32 Street

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	551	0	0	656	53	941	205	79	0	0	0
Future Volume (veh/h)	162	551	0	0	656	53	941	205	79	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1900			
Adj Flow Rate, veh/h	169	574	0	0	683	55	980	214	82			
Adj No. of Lanes	1	2	0	0	2	0	2	1	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	216	1232	0	0	801	64	2100	760	291			
Arrive On Green	0.08	0.35	0.00	0.00	0.24	0.24	0.59	0.59	0.59			
Sat Flow, veh/h	1774	3632	0	0	3411	267	3548	1284	492			
Grp Volume(v), veh/h	169	574	0	0	364	374	980	0	296			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1816	1774	0	1776			
Q Serve(g_s), s	10.6	18.9	0.0	0.0	29.5	29.5	23.4	0.0	12.2			
Cycle Q Clear(g_c), s	10.6	18.9	0.0	0.0	29.5	29.5	23.4	0.0	12.2			
Prop In Lane	1.00		0.00	0.00		0.15	1.00		0.28			
Lane Grp Cap(c), veh/h	216	1232	0	0	427	438	2100	0	1051			
V/C Ratio(X)	0.78	0.47	0.00	0.00	0.85	0.85	0.47	0.00	0.28			
Avail Cap(c_a), veh/h	216	1616	0	0	619	635	2100	0	1051			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.67	0.67	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.3	38.0	0.0	0.0	54.3	54.4	17.3	0.0	15.0			
Incr Delay (d2), s/veh	11.7	0.2	0.0	0.0	7.7	7.6	0.7	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	9.0	13.4	0.0	0.0	21.8	22.3	17.2	0.0	10.3			
LnGrp Delay(d),s/veh	53.0	38.2	0.0	0.0	62.0	62.0	18.0	0.0	15.7			
LnGrp LOS	D	D			E	E	B		B			
Approach Vol, veh/h		743			738			1276				
Approach Delay, s/veh		41.6			62.0			17.5				
Approach LOS		D			E			B				

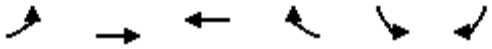
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		93.3		56.7			16.0	40.7
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		72.5		68.5			11.5	52.5
Max Q Clear Time (g_c+I1), s		25.4		20.9			12.6	31.5
Green Ext Time (p_c), s		7.0		4.5			0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
652: NW 29 Street & I 95 SB Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱
Traffic Volume (veh/h)	0	1254	526	0	484	388
Future Volume (veh/h)	0	1254	526	0	484	388
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863
Adj Flow Rate, veh/h	0	1306	548	0	504	404
Adj No. of Lanes	0	2	2	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2
Cap, veh/h	0	1439	1439	0	946	845
Arrive On Green	0.00	0.41	0.13	0.00	0.53	0.53
Sat Flow, veh/h	0	3725	3725	0	1774	1583
Grp Volume(v), veh/h	0	1306	548	0	504	404
Grp Sat Flow(s),veh/h/ln	0	1770	1770	0	1774	1583
Q Serve(g_s), s	0.0	52.1	21.2	0.0	27.8	24.0
Cycle Q Clear(g_c), s	0.0	52.1	21.2	0.0	27.8	24.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	1439	1439	0	946	845
V/C Ratio(X)	0.00	0.91	0.38	0.00	0.53	0.48
Avail Cap(c_a), veh/h	0	1545	1545	0	946	845
HCM Platoon Ratio	1.00	1.00	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.93	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	41.9	47.7	0.0	22.8	21.9
Incr Delay (d2), s/veh	0.0	7.8	0.2	0.0	2.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	35.5	15.6	0.0	20.3	16.3
LnGrp Delay(d),s/veh	0.0	49.7	47.9	0.0	25.0	23.9
LnGrp LOS		D	D		C	C
Approach Vol, veh/h		1306	548		908	
Approach Delay, s/veh		49.7	47.9		24.5	
Approach LOS		D	D		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				65.5		84.5		65.5
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				65.5		75.5		65.5
Max Q Clear Time (g_c+I1), s				54.1		29.8		23.2
Green Ext Time (p_c), s				6.9		3.4		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
653: NW 6 Avenue & NW 29 Street

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1254	484	0	0	212	107	314	901	278	0	0	0
Future Volume (veh/h)	1254	484	0	0	212	107	314	901	278	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	1306	504	0	0	221	111	327	939	290			
Adj No. of Lanes	2	2	0	0	2	0	1	2	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1319	2277	0	0	1488	721	526	1050	470			
Arrive On Green	1.00	1.00	0.00	0.00	0.64	0.64	0.30	0.30	0.30			
Sat Flow, veh/h	2025	3632	0	0	2407	1121	1774	3539	1583			
Grp Volume(v), veh/h	1306	504	0	0	167	165	327	939	290			
Grp Sat Flow(s),veh/h/ln	1013	1770	0	0	1770	1665	1774	1770	1583			
Q Serve(g_s), s	90.6	0.0	0.0	0.0	5.6	5.9	23.8	38.1	23.7			
Cycle Q Clear(g_c), s	96.5	0.0	0.0	0.0	5.6	5.9	23.8	38.1	23.7			
Prop In Lane	1.00		0.00	0.00		0.67	1.00		1.00			
Lane Grp Cap(c), veh/h	1319	2277	0	0	1138	1071	526	1050	470			
V/C Ratio(X)	0.99	0.22	0.00	0.00	0.15	0.15	0.62	0.89	0.62			
Avail Cap(c_a), veh/h	1319	2277	0	0	1138	1071	526	1050	470			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.52	0.52	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	5.8	0.0	0.0	0.0	10.5	10.6	45.5	50.5	45.4			
Incr Delay (d2), s/veh	15.5	0.0	0.0	0.0	0.1	0.1	5.4	11.7	6.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	36.2	0.0	0.0	0.0	4.9	4.9	18.3	27.7	16.6			
LnGrp Delay(d),s/veh	21.3	0.0	0.0	0.0	10.6	10.7	50.9	62.2	51.4			
LnGrp LOS	C	A			B	B	D	E	D			
Approach Vol, veh/h		1810			332			1556				
Approach Delay, s/veh		15.4			10.6			57.8				
Approach LOS		B			B			E				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		49.0		101.0				101.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		44.5		96.5				96.5
Max Q Clear Time (g_c+I1), s		40.1		98.5				7.9
Green Ext Time (p_c), s		3.1		0.0				2.2

Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
701: NW 62nd St & NW 7th Ave/SR 7

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	237	629	81	255	752	150	113	1121	171	94	910	139
Future Volume (veh/h)	237	629	81	255	752	150	113	1121	171	94	910	139
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	239	635	82	258	760	152	114	1132	173	95	919	140
Adj No. of Lanes	1	2	0	1	2	0	1	2	1	1	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	830	107	299	801	160	216	1256	562	200	1109	169
Arrive On Green	0.09	0.26	0.26	0.10	0.27	0.27	0.06	0.35	0.35	0.06	0.36	0.36
Sat Flow, veh/h	1774	3154	407	1774	2941	588	1774	3539	1583	1774	3080	469
Grp Volume(v), veh/h	239	356	361	258	457	455	114	1132	173	95	528	531
Grp Sat Flow(s),veh/h/ln	1774	1770	1791	1774	1770	1759	1774	1770	1583	1774	1770	1780
Q Serve(g_s), s	10.0	20.4	20.5	11.0	27.9	27.9	4.4	33.4	8.7	3.6	29.9	29.9
Cycle Q Clear(g_c), s	10.0	20.4	20.5	11.0	27.9	27.9	4.4	33.4	8.7	3.6	29.9	29.9
Prop In Lane	1.00		0.23	1.00		0.33	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	238	466	471	299	482	479	216	1256	562	200	637	641
V/C Ratio(X)	1.00	0.76	0.77	0.86	0.95	0.95	0.53	0.90	0.31	0.47	0.83	0.83
Avail Cap(c_a), veh/h	238	467	472	299	483	480	225	1256	562	232	637	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	37.4	37.4	30.4	39.3	39.3	25.2	33.6	25.7	25.9	32.1	32.1
Incr Delay (d2), s/veh	59.3	7.1	7.1	2.5	4.7	4.8	0.9	10.6	1.4	0.7	11.8	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.8	16.3	16.5	3.5	16.1	16.0	3.9	25.0	7.2	3.2	23.3	23.4
LnGrp Delay(d),s/veh	91.2	44.4	44.5	32.9	44.0	44.0	26.1	44.2	27.1	26.6	43.9	43.9
LnGrp LOS	F	D	D	C	D	D	C	D	C	C	D	D
Approach Vol, veh/h		956			1170			1419			1154	
Approach Delay, s/veh		56.1			41.6			40.7			42.5	
Approach LOS		E			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	45.0	17.0	35.0	12.4	45.6	16.0	36.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	9.0	37.0	11.0	29.0	7.0	39.0	10.0	30.0
Max Q Clear Time (g_c+I1), s	5.6	35.4	13.0	22.5	6.4	31.9	12.0	29.9
Green Ext Time (p_c), s	0.0	0.8	0.0	2.1	0.0	1.8	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
702: NW 6th Ave/SB On-Ramp/SB Off-Ramp & NW 62nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	771	181	887	1038	0	0	0	0	466	508	195
Future Volume (veh/h)	0	771	181	887	1038	0	0	0	0	466	508	195
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1827	1900	1827	1827	0				1827	1827	1900
Adj Flow Rate, veh/h	0	820	193	683	1470	0				496	540	207
Adj No. of Lanes	0	2	0	1	2	0				1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	4	4	4	4	0				4	4	4
Cap, veh/h	0	738	174	626	1315	0				404	570	218
Arrive On Green	0.00	0.29	0.29	0.36	0.36	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	2945	603	1740	3654	0				1740	2458	939
Grp Volume(v), veh/h	0	462	551	683	1470	0				496	381	366
Grp Sat Flow(s),veh/h/ln	0	1443	1721	1740	1827	0				1740	1736	1661
Q Serve(g_s), s	0.0	36.0	36.0	45.0	45.0	0.0				29.0	27.0	27.2
Cycle Q Clear(g_c), s	0.0	36.0	36.0	45.0	45.0	0.0				29.0	27.0	27.2
Prop In Lane	0.00		0.35	1.00		0.00				1.00		0.57
Lane Grp Cap(c), veh/h	0	416	496	626	1315	0				404	403	385
V/C Ratio(X)	0.00	1.11	1.11	1.09	1.12	0.00				1.23	0.95	0.95
Avail Cap(c_a), veh/h	0	416	496	626	1315	0				404	403	385
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	44.5	44.5	40.0	40.0	0.0				48.0	47.2	47.3
Incr Delay (d2), s/veh	0.0	78.0	74.7	63.0	63.7	0.0				123.0	31.1	33.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	42.0	49.2	58.6	61.7	0.0				49.8	23.0	22.5
LnGrp Delay(d),s/veh	0.0	122.5	119.2	103.0	103.7	0.0				171.0	78.3	80.3
LnGrp LOS		F	F	F	F					F	E	F
Approach Vol, veh/h		1013			2153						1243	
Approach Delay, s/veh		120.7			103.5						115.9	
Approach LOS		F			F						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		50.0				41.0		34.0
Change Period (Y+Rc), s		5.0				5.0		5.0
Max Green Setting (Gmax), s		45.0				36.0		29.0
Max Q Clear Time (g_c+I1), s		47.0				38.0		31.0
Green Ext Time (p_c), s		0.0				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
703: NW 6th Ave/NB Off-Ramp/NW 5th Ct/NB On-Ramp & NW 62nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1148	0	0	833	25	1092	99	634	0	0	0
Future Volume (veh/h)	90	1148	0	0	833	25	1092	99	634	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1900	1845	1845	1845			
Adj Flow Rate, veh/h	92	1171	0	0	850	26	1114	0	714			
Adj No. of Lanes	2	2	0	0	3	0	2	0	3			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	694	1918	0	0	2053	63	1324	0	1773			
Arrive On Green	0.05	0.73	0.00	0.00	0.62	0.62	0.38	0.00	0.38			
Sat Flow, veh/h	3408	3597	0	0	4878	134	3514	0	4704			
Grp Volume(v), veh/h	92	1171	0	0	522	354	1114	0	714			
Grp Sat Flow(s),veh/h/ln	1704	1752	0	0	1347	1821	1757	0	1568			
Q Serve(g_s), s	1.6	20.5	0.0	0.0	12.3	12.3	36.2	0.0	13.9			
Cycle Q Clear(g_c), s	1.6	20.5	0.0	0.0	12.3	12.3	36.2	0.0	13.9			
Prop In Lane	1.00		0.00	0.00		0.07	1.00		1.00			
Lane Grp Cap(c), veh/h	694	1918	0	0	1262	854	1324	0	1773			
V/C Ratio(X)	0.13	0.61	0.00	0.00	0.41	0.41	0.84	0.00	0.40			
Avail Cap(c_a), veh/h	700	1918	0	0	1262	854	1729	0	2314			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.3	10.5	0.0	0.0	14.8	14.8	35.5	0.0	28.6			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	1.0	1.5	3.1	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	1.2	11.3	0.0	0.0	8.3	10.7	25.0	0.0	10.1			
LnGrp Delay(d),s/veh	15.3	10.6	0.0	0.0	15.8	16.3	38.6	0.0	28.8			
LnGrp LOS	B	B			B	B	D		C			
Approach Vol, veh/h		1263			876			1828				
Approach Delay, s/veh		11.0			16.0			34.8				
Approach LOS		B			B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	9.8	63.6		51.6		73.4		
Change Period (Y+Rc), s	5.0	5.0		4.5		5.0		
Max Green Setting (Gmax), s	5.0	44.0		61.5		54.0		
Max Q Clear Time (g_c+I1), s	3.6	14.3		38.2		22.5		
Green Ext Time (p_c), s	0.0	2.2		8.9		3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	23.0
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
704: NW 2nd Ave & NW 62nd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	1133	285	63	606	40	108	370	64	30	206	101
Future Volume (veh/h)	168	1133	285	63	606	40	108	370	64	30	206	101
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	177	1193	300	66	638	42	114	389	67	32	217	106
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	471	1567	389	182	1783	117	246	422	359	113	349	297
Arrive On Green	0.06	0.56	0.56	0.03	0.53	0.53	0.06	0.23	0.23	0.02	0.19	0.19
Sat Flow, veh/h	1774	2811	698	1774	3371	222	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	177	746	747	66	335	345	114	389	67	32	217	106
Grp Sat Flow(s),veh/h/ln	1774	1770	1739	1774	1770	1824	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	6.8	48.3	50.0	2.5	16.5	16.5	7.6	30.6	5.1	2.2	16.1	8.7
Cycle Q Clear(g_c), s	6.8	48.3	50.0	2.5	16.5	16.5	7.6	30.6	5.1	2.2	16.1	8.7
Prop In Lane	1.00		0.40	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	471	987	970	182	936	965	246	422	359	113	349	297
V/C Ratio(X)	0.38	0.76	0.77	0.36	0.36	0.36	0.46	0.92	0.19	0.28	0.62	0.36
Avail Cap(c_a), veh/h	578	987	970	186	936	965	310	509	433	128	385	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	25.4	25.7	23.6	20.5	20.5	44.6	56.7	46.8	49.5	56.0	53.1
Incr Delay (d2), s/veh	0.2	5.4	5.9	0.5	1.1	1.0	0.5	19.4	0.2	0.5	2.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.0	33.3	33.7	2.3	13.0	13.3	6.7	25.0	4.1	1.9	13.2	7.0
LnGrp Delay(d),s/veh	15.4	30.8	31.6	24.1	21.6	21.6	45.2	76.1	47.0	50.0	58.3	53.6
LnGrp LOS	B	C	C	C	C	C	D	E	D	D	E	D
Approach Vol, veh/h		1670			746			570			355	
Approach Delay, s/veh		29.5			21.8			66.5			56.1	
Approach LOS		C			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	85.3	9.7	40.0	10.7	89.6	15.6	34.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	18.0	62.0	5.0	41.0	5.0	75.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	8.8	18.5	4.2	32.6	4.5	52.0	9.6	18.1
Green Ext Time (p_c), s	0.2	1.5	0.0	1.4	0.0	4.3	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
901: NW 7th Ave/SR 7 & NW 79th St

2045 Build Scenario
Timing Plan: PM Peak Hour

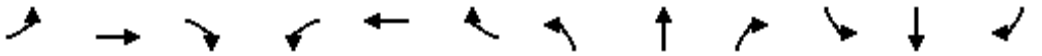
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	955	46	135	217	183	25	1406	191	403	908	70
Future Volume (veh/h)	338	955	46	135	217	183	25	1406	191	403	908	70
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	348	985	47	139	224	189	26	1449	197	415	936	72
Adj No. of Lanes	1	2	0	1	2	0	1	3	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	356	951	45	176	449	362	275	1360	424	350	1394	779
Arrive On Green	0.10	0.28	0.28	0.02	0.08	0.08	0.03	0.27	0.27	0.33	0.80	0.80
Sat Flow, veh/h	1740	3373	161	1740	1829	1474	1740	4988	1553	1740	3471	1553
Grp Volume(v), veh/h	348	507	525	139	212	201	26	1449	197	415	936	72
Grp Sat Flow(s),veh/h/ln	1740	1736	1799	1740	1736	1567	1740	1663	1553	1740	1736	1553
Q Serve(g_s), s	11.0	31.0	31.0	6.5	12.9	13.5	1.2	30.0	11.6	18.0	12.7	0.9
Cycle Q Clear(g_c), s	11.0	31.0	31.0	6.5	12.9	13.5	1.2	30.0	11.6	18.0	12.7	0.9
Prop In Lane	1.00		0.09	1.00		0.94	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	489	507	176	426	385	275	1360	424	350	1394	779
V/C Ratio(X)	0.98	1.04	1.04	0.79	0.50	0.52	0.09	1.07	0.47	1.19	0.67	0.09
Avail Cap(c_a), veh/h	356	489	507	176	426	385	325	1360	424	350	1394	779
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	36.5	39.5	39.5	33.3	44.1	44.4	26.8	40.0	33.3	24.1	7.7	4.6
Incr Delay (d2), s/veh	41.6	50.3	49.6	13.1	0.4	0.6	0.1	43.8	3.6	105.0	2.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.5	39.0	40.2	6.3	9.5	9.2	1.0	34.6	9.2	37.3	9.8	0.7
LnGrp Delay(d),s/veh	78.1	89.8	89.1	46.4	44.5	45.0	26.8	83.8	37.0	129.1	9.9	4.8
LnGrp LOS	E	F	F	D	D	D	C	F	D	F	A	A
Approach Vol, veh/h		1380			552			1672			1423	
Approach Delay, s/veh		86.6			45.2			77.4			44.4	
Approach LOS		F			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	50.2	17.0	33.0	24.0	36.0	13.0	37.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.0	41.0	11.0	27.0	18.0	30.0	7.0	31.0
Max Q Clear Time (g_c+I1), s	3.2	14.7	13.0	15.5	20.0	32.0	8.5	33.0
Green Ext Time (p_c), s	0.0	2.8	0.0	1.6	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	67.1
HCM 2010 LOS	E

HCM Signalized Intersection Capacity Analysis
902: NW 6th Ct/SB On-Ramp/NW 6th Ct & NW 79th St

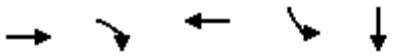
2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱		↑					↰	↑↑	↱
Traffic Volume (vph)	0	1248	300	0	656	0	0	0	0	632	739	0
Future Volume (vph)	0	1248	300	0	656	0	0	0	0	632	739	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		3.0					4.6	4.6	
Lane Util. Factor		*0.91	1.00		1.00					1.00	0.95	
Frt		1.00	0.85		1.00					1.00	1.00	
Flt Protected		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (prot)		3325	1553		1827					1736	3471	
Flt Permitted		1.00	1.00		1.00					0.95	1.00	
Satd. Flow (perm)		3325	1553		1827					1736	3471	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	1273	306	0	669	0	0	0	0	645	754	0
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1273	258	0	669	0	0	0	0	645	754	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type		NA	Perm		NA					pm+pt	NA	Perm
Protected Phases		6			1 2					8	3	
Permitted Phases			6							3		3
Actuated Green, G (s)		55.0	55.0		55.0					45.4	45.4	
Effective Green, g (s)		55.0	55.0		55.0					45.4	45.4	
Actuated g/C Ratio		0.50	0.50		0.50					0.41	0.41	
Clearance Time (s)		5.0	5.0							4.6	4.6	
Vehicle Extension (s)		1.0	1.0							3.0	3.5	
Lane Grp Cap (vph)		1662	776		913					716	1432	
v/s Ratio Prot		c0.38			0.37					c0.15	0.22	
v/s Ratio Perm			0.17							0.22		
v/c Ratio		0.77	0.33		0.73					0.90	0.53	
Uniform Delay, d1		22.3	16.5		21.7					28.0	24.2	
Progression Factor		0.62	0.70		0.48					0.97	1.04	
Incremental Delay, d2		0.3	0.1		0.2					11.0	0.3	
Delay (s)		14.0	11.7		10.7					38.1	25.5	
Level of Service		B	B		B					D	C	
Approach Delay (s)		13.6			10.7			0.0			31.3	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	137.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
902: NW 6th Ct/SB On-Ramp/NW 6th Ct & NW 79th St



Lane Group	EBT	EBR	WBT	SBL	SBT
Lane Group Flow (vph)	1273	306	669	645	754
v/c Ratio	0.77	0.37	0.71	0.90	0.53
Control Delay	14.3	8.1	10.4	43.0	26.5
Queue Delay	2.0	0.8	3.3	49.5	0.0
Total Delay	16.3	8.8	13.7	92.5	26.5
Queue Length 50th (ft)	177	36	62	326	186
Queue Length 95th (ft)	m175	m32	m52	m#593	m246
Internal Link Dist (ft)	267		223		566
Turn Bay Length (ft)					
Base Capacity (vph)	1662	825	946	716	1432
Starvation Cap Reductn	240	266	184	0	0
Spillback Cap Reductn	51	0	0	259	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.90	0.55	0.88	1.41	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
903: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 79th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	596	1361	0	0	656	125	0	776	536	0	0	0
Future Volume (vph)	596	1361	0	0	656	125	0	776	536	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	5.0			5.0			4.6	4.0			
Lane Util. Factor	0.97	0.95			1.00			0.95	1.00			
Frt	1.00	1.00			0.98			1.00	0.85			
Flt Protected	0.95	1.00			1.00			1.00	1.00			
Satd. Flow (prot)	3367	3471			1787			3471	1553			
Flt Permitted	0.36	1.00			1.00			1.00	1.00			
Satd. Flow (perm)	1272	3471			1787			3471	1553			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	621	1418	0	0	683	130	0	808	558	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	621	1418	0	0	807	0	0	808	558	0	0	0
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	custom	NA			NA			NA	Free			
Protected Phases	1	6 8			2			7				
Permitted Phases	8								Free			
Actuated Green, G (s)	28.4	78.0			42.0			22.4	110.0			
Effective Green, g (s)	28.4	73.4			42.0			22.4	110.0			
Actuated g/C Ratio	0.26	0.67			0.38			0.20	1.00			
Clearance Time (s)	3.0				5.0			4.6				
Vehicle Extension (s)	2.0				1.0			2.5				
Lane Grp Cap (vph)	518	2316			682			706	1553			
v/s Ratio Prot	c0.11	0.41			c0.45			c0.23				
v/s Ratio Perm	c0.20								0.36			
v/c Ratio	1.20	0.61			1.18			1.14	0.36			
Uniform Delay, d1	39.7	10.3			34.0			43.8	0.0			
Progression Factor	1.17	0.67			1.00			1.00	1.00			
Incremental Delay, d2	101.0	0.3			96.9			81.2	0.6			
Delay (s)	147.5	7.2			130.9			125.0	0.6			
Level of Service	F	A			F			F	A			
Approach Delay (s)		49.9			130.9			74.2			0.0	
Approach LOS		D			F			E			A	

Intersection Summary			
HCM 2000 Control Delay	73.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	137.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	621	1418	813	808	558
v/c Ratio	1.16	0.58	1.18	1.14	0.36
Control Delay	127.4	6.0	128.2	121.4	0.6
Queue Delay	0.0	1.4	0.0	0.0	0.0
Total Delay	127.4	7.4	128.2	121.4	0.6
Queue Length 50th (ft)	~248	168	~689	~352	0
Queue Length 95th (ft)	m#359	m195	#929	#476	0
Internal Link Dist (ft)		223	529	429	
Turn Bay Length (ft)	190				
Base Capacity (vph)	537	2461	688	706	1553
Starvation Cap Reductn	0	786	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.16	0.85	1.18	1.14	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
904: NW 7th Ave/SR 7 & NW 81st St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	291	999	503	29	1899	0	0	1089	115
Future Volume (veh/h)	0	0	0	291	999	503	29	1899	0	0	1089	115
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				300	1034	516	30	1958	0	0	1123	119
Adj No. of Lanes				1	2	1	1	3	0	0	3	0
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				689	1448	615	254	2583	0	0	2121	225
Arrive On Green				0.13	0.13	0.13	0.04	0.68	0.00	0.00	0.61	0.61
Sat Flow, veh/h				1757	3689	1568	1757	5202	0	0	4792	490
Grp Volume(v), veh/h				300	1034	516	30	1958	0	0	815	427
Grp Sat Flow(s),veh/h/ln				1757	1845	1568	1757	1679	0	0	1679	1758
Q Serve(g_s), s				17.3	29.6	35.4	0.9	28.1	0.0	0.0	15.4	15.4
Cycle Q Clear(g_c), s				17.3	29.6	35.4	0.9	28.1	0.0	0.0	15.4	15.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.28
Lane Grp Cap(c), veh/h				689	1448	615	254	2583	0	0	1539	806
V/C Ratio(X)				0.44	0.71	0.84	0.12	0.76	0.00	0.00	0.53	0.53
Avail Cap(c_a), veh/h				716	1503	639	286	2583	0	0	1539	806
HCM Platoon Ratio				0.33	0.33	0.33	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.86	0.86	0.86	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.6	42.0	44.5	15.1	13.0	0.0	0.0	14.6	14.6
Incr Delay (d2), s/veh				0.4	1.4	8.4	0.0	0.2	0.0	0.0	1.3	2.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				13.0	21.4	39.1	0.8	14.5	0.0	0.0	11.7	12.5
LnGrp Delay(d),s/veh				37.1	43.4	52.9	15.1	13.2	0.0	0.0	15.9	17.1
LnGrp LOS				D	D	D	B	B			B	B
Approach Vol, veh/h					1850			1988			1242	
Approach Delay, s/veh					45.0			13.2			16.3	
Approach LOS					D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		61.6		48.4	6.0	55.6		
Change Period (Y+Rc), s		* 5.2		* 5.2	3.0	* 5.2		
Max Green Setting (Gmax), s		* 55		* 45	5.0	* 47		
Max Q Clear Time (g_c+I1), s		30.1		37.4	2.9	17.4		
Green Ext Time (p_c), s		7.6		5.8	0.0	3.6		

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

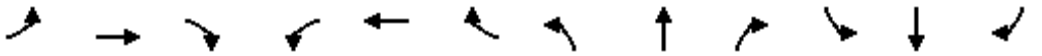
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
905: NW 6th Ct/NW 6th Ct/SB Off-Ramp & NW 81st St

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	629	1283	0	0	0	0	0	742	509
Future Volume (vph)	0	0	0	629	1283	0	0	0	0	0	742	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.2	5.2						5.2	
Lane Util. Factor				0.86	0.86						0.91	
Frt				1.00	1.00						0.94	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4779						4775	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4779						4775	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	0	0	0	635	1296	0	0	0	0	0	749	514
RTOR Reduction (vph)	0	0	0	14	13	0	0	0	0	0	44	0
Lane Group Flow (vph)	0	0	0	456	1448	0	0	0	0	0	1219	0
Turn Type				Split	NA						NA	
Protected Phases				2 3	2 3						4	
Permitted Phases												
Actuated Green, G (s)				67.1	67.1						32.5	
Effective Green, g (s)				67.1	67.1						32.5	
Actuated g/C Ratio				0.61	0.61						0.30	
Clearance Time (s)											5.2	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)				928	2915						1410	
v/s Ratio Prot				0.30	c0.30						c0.26	
v/s Ratio Perm												
v/c Ratio				0.49	0.50						0.99dr	
Uniform Delay, d1				11.9	12.0						36.7	
Progression Factor				0.23	0.25						1.00	
Incremental Delay, d2				0.3	0.1						5.8	
Delay (s)				3.0	3.1						42.4	
Level of Service				A	A						D	
Approach Delay (s)		0.0			3.1			0.0			42.4	
Approach LOS		A			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	470	1461	1263
v/c Ratio	0.50	0.50	0.99dr
Control Delay	3.7	3.3	42.4
Queue Delay	1.6	0.6	0.5
Total Delay	5.3	4.0	42.9
Queue Length 50th (ft)	40	49	294
Queue Length 95th (ft)	m68	73	354
Internal Link Dist (ft)		240	535
Turn Bay Length (ft)			
Base Capacity (vph)	948	2944	1468
Starvation Cap Reductn	298	996	0
Spillback Cap Reductn	0	362	37
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.72	0.75	0.88

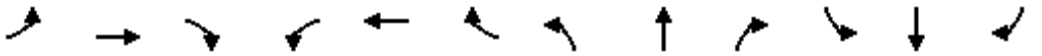
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis
906: NW 6th Ave/NW 6th Ave/NB On-Ramp & NW 81st St

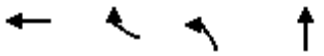
2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1437	531	475	1022	0	0	0	0
Future Volume (vph)	0	0	0	0	1437	531	475	1022	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.2	4.0	5.2	5.2				
Lane Util. Factor					0.91	1.00	0.91	0.91				
Frt					1.00	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					4940	1538	1564	3286				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					4940	1538	1564	3286				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1562	577	516	1111	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	10	10	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1562	577	454	1153	0	0	0	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type					NA	Free	Split	NA				
Protected Phases					2		8	8				
Permitted Phases						Free						
Actuated Green, G (s)					41.3	110.0	58.3	58.3				
Effective Green, g (s)					41.3	110.0	58.3	58.3				
Actuated g/C Ratio					0.38	1.00	0.53	0.53				
Clearance Time (s)					5.2		5.2	5.2				
Vehicle Extension (s)					1.0		3.0	3.0				
Lane Grp Cap (vph)					1854	1538	828	1741				
v/s Ratio Prot					c0.32		0.29	c0.35				
v/s Ratio Perm						0.38						
v/c Ratio					0.84	0.38	0.55	0.66				
Uniform Delay, d1					31.4	0.0	17.1	18.7				
Progression Factor					1.00	1.00	0.90	0.87				
Incremental Delay, d2					4.9	0.7	0.1	0.1				
Delay (s)					36.2	0.7	15.5	16.4				
Level of Service					D	A	B	B				
Approach Delay (s)		0.0			26.7			16.1			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.6
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
906: NW 6th Ave/NW 6th Ave/NB On-Ramp & NW 81st St



Lane Group	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1562	577	464	1163
v/c Ratio	0.84	0.38	0.55	0.66
Control Delay	36.7	0.7	15.2	16.3
Queue Delay	0.0	0.0	0.0	0.5
Total Delay	36.7	0.7	15.2	16.8
Queue Length 50th (ft)	368	0	154	204
Queue Length 95th (ft)	433	0	m135	m177
Internal Link Dist (ft)	629			570
Turn Bay Length (ft)				
Base Capacity (vph)	1854	1538	849	1773
Starvation Cap Reductn	0	0	0	235
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.84	0.38	0.55	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1001: NW 7th Ave/SR 7 & NW 95th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	740	162	249	551	242	151	2304	210	142	665	66
Future Volume (veh/h)	301	740	162	249	551	242	151	2304	210	142	665	66
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1881	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	307	755	165	254	562	247	154	2351	214	145	679	67
Adj No. of Lanes	1	2	1	1	2	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	352	799	357	285	714	424	401	1962	176	167	1950	191
Arrive On Green	0.15	0.22	0.22	0.13	0.20	0.20	0.09	0.54	0.54	0.09	0.55	0.55
Sat Flow, veh/h	1792	3574	1599	1792	3574	1599	1792	4799	430	1792	4757	466
Grp Volume(v), veh/h	307	755	165	254	562	247	154	1666	899	145	487	259
Grp Sat Flow(s),veh/h/ln	1792	1787	1599	1792	1787	1599	1792	1712	1805	1792	1712	1799
Q Serve(g_s), s	19.5	30.2	13.0	16.2	21.6	19.5	7.2	59.3	59.3	7.5	11.6	11.7
Cycle Q Clear(g_c), s	19.5	30.2	13.0	16.2	21.6	19.5	7.2	59.3	59.3	7.5	11.6	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		0.26
Lane Grp Cap(c), veh/h	352	799	357	285	714	424	401	1400	738	167	1404	737
V/C Ratio(X)	0.87	0.95	0.46	0.89	0.79	0.58	0.38	1.19	1.22	0.87	0.35	0.35
Avail Cap(c_a), veh/h	388	804	360	314	714	424	454	1400	738	168	1404	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.42	0.42	0.42	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	55.4	48.8	41.3	55.1	46.3	22.1	33.1	33.1	37.9	22.1	22.1
Incr Delay (d2), s/veh	16.8	19.5	0.7	11.7	2.5	0.7	0.2	93.0	110.4	34.0	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	16.7	23.8	9.7	12.0	14.5	11.9	6.4	82.3	93.2	11.7	9.4	10.2
LnGrp Delay(d),s/veh	56.3	75.0	49.4	52.9	57.6	47.0	22.3	126.1	143.5	71.9	22.8	23.4
LnGrp LOS	E	E	D	D	E	D	C	F	F	E	C	C
Approach Vol, veh/h		1227			1063			2719			891	
Approach Delay, s/veh		66.9			54.0			126.0			31.0	
Approach LOS		E			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	65.8	28.1	35.4	15.9	65.7	24.7	38.8
Change Period (Y+Rc), s	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Max Green Setting (Gmax), s	13.6	52.6	24.6	28.6	9.6	56.6	20.6	32.6
Max Q Clear Time (g_c+I1), s	9.2	13.7	21.5	23.6	9.5	61.3	18.2	32.2
Green Ext Time (p_c), s	0.1	1.9	0.2	1.8	0.0	0.0	0.1	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	86.4
HCM 2010 LOS	F

HCM 2010 Signalized Intersection Summary
1002: SB On-Ramp/SB Off-Ramp & NW 95th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	285	807	918	102	0	0	0	0	741	91	940
Future Volume (veh/h)	0	285	807	918	102	0	0	0	0	741	91	940
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1900	1900	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	310	0	998	111	0				805	99	1022
Adj No. of Lanes	0	2	1	1	2	0				2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1324	592	645	1888	0				1209	1243	556
Arrive On Green	0.00	0.37	0.00	0.13	0.53	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3705	1615	1774	3632	0				3442	3539	1583
Grp Volume(v), veh/h	0	310	0	998	111	0				805	99	1022
Grp Sat Flow(s),veh/h/ln	0	1805	1615	1774	1770	0				1721	1770	1583
Q Serve(g_s), s	0.0	5.0	0.0	11.0	1.3	0.0				16.6	1.6	29.5
Cycle Q Clear(g_c), s	0.0	5.0	0.0	11.0	1.3	0.0				16.6	1.6	29.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1324	592	645	1888	0				1209	1243	556
V/C Ratio(X)	0.00	0.23	0.00	1.55	0.06	0.00				0.67	0.08	1.84
Avail Cap(c_a), veh/h	0	1345	602	645	1909	0				1209	1243	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.25	0.00	0.49	0.49	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.4	0.0	21.7	9.4	0.0				23.1	18.2	27.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	249.9	0.0	0.0				1.4	0.0	384.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	3.8	0.0	97.7	1.1	0.0				12.7	1.4	129.9
LnGrp Delay(d),s/veh	0.0	18.5	0.0	271.6	9.5	0.0				24.5	18.2	411.3
LnGrp LOS		B		F	A					C	B	F
Approach Vol, veh/h		310			1109						1926	
Approach Delay, s/veh		18.5			245.3						229.4	
Approach LOS		B			F						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		50.0			14.0	36.0		34.0
Change Period (Y+Rc), s		* 5.2			3.0	* 5.2		4.5
Max Green Setting (Gmax), s		* 45			11.0	* 31		29.5
Max Q Clear Time (g_c+I1), s		3.3			13.0	7.0		31.5
Green Ext Time (p_c), s		0.3			0.0	0.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	215.2
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1003: NW 6th Avenue/NB Off-Ramp & NW 95th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	595	432	0	0	667	305	354	289	591	0	0	0
Future Volume (veh/h)	595	432	0	0	667	305	354	289	591	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	647	470	0	0	725	332	385	314	642			
Adj No. of Lanes	1	2	0	0	2	0	1	2	2			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	467	2199	0	0	944	432	532	1062	836			
Arrive On Green	0.18	0.61	0.00	0.00	0.40	0.40	0.30	0.30	0.30			
Sat Flow, veh/h	1810	3705	0	0	2454	1081	1774	3539	2787			
Grp Volume(v), veh/h	647	470	0	0	543	514	385	314	642			
Grp Sat Flow(s),veh/h/ln	1810	1805	0	0	1770	1672	1774	1770	1393			
Q Serve(g_s), s	20.0	6.4	0.0	0.0	29.2	29.3	21.3	7.5	23.0			
Cycle Q Clear(g_c), s	20.0	6.4	0.0	0.0	29.2	29.3	21.3	7.5	23.0			
Prop In Lane	1.00		0.00	0.00		0.65	1.00		1.00			
Lane Grp Cap(c), veh/h	467	2199	0	0	708	669	532	1062	836			
V/C Ratio(X)	1.39	0.21	0.00	0.00	0.77	0.77	0.72	0.30	0.77			
Avail Cap(c_a), veh/h	467	2199	0	0	708	669	532	1062	836			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.81	0.81	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	27.9	9.7	0.0	0.0	28.6	28.6	34.4	29.6	35.0			
Incr Delay (d2), s/veh	184.0	0.2	0.0	0.0	7.8	8.3	8.3	0.7	6.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	68.4	5.9	0.0	0.0	22.2	21.3	17.3	6.8	14.7			
LnGrp Delay(d),s/veh	211.9	9.8	0.0	0.0	36.4	36.8	42.7	30.3	41.7			
LnGrp LOS	F	A			D	D	D	C	D			
Approach Vol, veh/h		1117			1057			1341				
Approach Delay, s/veh		126.9			36.6			39.3				
Approach LOS		F			D			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	23.0	49.0		38.0		72.0		
Change Period (Y+Rc), s	3.0	5.0		5.0		5.0		
Max Green Setting (Gmax), s	20.0	44.0		33.0		67.0		
Max Q Clear Time (g_c+I1), s	22.0	31.3		25.0		8.4		
Green Ext Time (p_c), s	0.0	2.4		4.5		1.2		

Intersection Summary	
HCM 2010 Ctrl Delay	66.3
HCM 2010 LOS	E

Part 2
AM Peak Period

HCM 2010 Signalized Intersection Summary
1101: NW 7th Ave/SR 7 & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	274	1027	203	167	1242	147	95	464	50	248	2228	150
Future Volume (veh/h)	274	1027	203	167	1242	147	95	464	50	248	2228	150
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1827	1827	1827	1900	1827	1827	1900
Adj Flow Rate, veh/h	308	1154	228	188	1396	165	107	521	56	279	2503	169
Adj No. of Lanes	1	3	0	1	3	1	1	3	0	1	3	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	208	1066	211	176	1596	464	176	1740	185	438	1863	124
Arrive On Green	0.07	0.33	0.31	0.06	0.32	0.30	0.08	0.51	0.47	0.09	0.52	0.49
Sat Flow, veh/h	1740	3232	638	1740	4988	1553	1740	4580	486	1740	4778	318
Grp Volume(v), veh/h	308	770	612	188	1396	165	107	376	201	279	1730	942
Grp Sat Flow(s),veh/h/ln	1740	1078	1714	1740	1663	1553	1740	1663	1741	1740	1663	1771
Q Serve(g_s), s	7.0	33.0	33.0	6.0	26.4	8.3	3.8	6.6	6.8	7.0	39.0	39.0
Cycle Q Clear(g_c), s	7.0	33.0	33.0	6.0	26.4	8.3	3.8	6.6	6.8	7.0	39.0	39.0
Prop In Lane	1.00		0.37	1.00		1.00	1.00		0.28	1.00		0.18
Lane Grp Cap(c), veh/h	208	711	566	176	1596	464	176	1264	662	438	1297	691
V/C Ratio(X)	1.48	1.08	1.08	1.07	0.87	0.36	0.61	0.30	0.30	0.64	1.33	1.36
Avail Cap(c_a), veh/h	208	711	566	176	1596	464	176	1264	662	438	1297	691
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.66	0.66	0.66	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	33.5	33.9	29.9	32.1	27.5	23.7	17.0	17.3	21.6	24.1	24.3
Incr Delay (d2), s/veh	239.7	58.1	62.0	73.4	3.8	0.2	4.2	0.6	1.2	2.4	155.8	172.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	32.0	27.9	45.5	12.5	17.5	6.1	3.6	5.6	6.2	8.9	82.1	93.3
LnGrp Delay(d),s/veh	269.4	91.6	95.9	103.4	35.9	27.7	28.0	17.6	18.5	24.0	179.9	197.1
LnGrp LOS	F	F	F	F	D	C	C	B	B	C	F	F
Approach Vol, veh/h		1690			1749			684			2951	
Approach Delay, s/veh		125.6			42.4			19.5			170.7	
Approach LOS		F			D			B			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	43.0	10.0	37.0	11.0	42.0	11.0	36.0
Change Period (Y+Rc), s	5.0	6.3	5.0	* 6.1	5.0	6.3	5.0	* 6.1
Max Green Setting (Gmax), s	5.0	36.7	5.0	* 31	6.0	35.7	6.0	* 30
Max Q Clear Time (g_c+I1), s	5.8	41.0	8.0	35.0	9.0	8.8	9.0	28.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.1

Intersection Summary		
HCM 2010 Ctrl Delay		113.6
HCM 2010 LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1102: SB On-Ramp/SB Off-Ramp & NW 103rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	388	938	972	471	0	0	0	0	734	80	1085
Future Volume (veh/h)	0	388	938	972	471	0	0	0	0	734	80	1085
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1881	1881	1881	0				1881	1881	1881
Adj Flow Rate, veh/h	0	441	0	1105	535	0				899	0	1233
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	1
Cap, veh/h	0	569	272	1305	1894	0				1397	0	1247
Arrive On Green	0.00	0.23	0.00	0.43	0.70	0.00				0.39	0.00	0.39
Sat Flow, veh/h	0	3555	1599	3476	3668	0				3583	0	3198
Grp Volume(v), veh/h	0	441	0	1105	535	0				899	0	1233
Grp Sat Flow(s),veh/h/ln	0	1674	1599	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	12.4	0.0	23.7	5.5	0.0				20.4	0.0	38.3
Cycle Q Clear(g_c), s	0.0	12.4	0.0	23.7	5.5	0.0				20.4	0.0	38.3
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	569	272	1305	1894	0				1397	0	1247
V/C Ratio(X)	0.00	0.77	0.00	0.85	0.28	0.00				0.64	0.00	0.99
Avail Cap(c_a), veh/h	0	1072	512	1305	1894	0				1397	0	1247
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.66	0.66	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	36.9	0.0	17.3	7.7	0.0				24.8	0.0	30.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.4	0.2	0.0				0.9	0.0	22.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	6.9	0.0	16.1	5.0	0.0				15.6	0.0	28.2
LnGrp Delay(d),s/veh	0.0	37.0	0.0	20.7	8.0	0.0				25.8	0.0	52.9
LnGrp LOS		D		C	A					C		D
Approach Vol, veh/h		441			1640						2132	
Approach Delay, s/veh		37.0			16.5						41.5	
Approach LOS		D			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		57.0			36.0	21.0		43.0
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		52.0			18.0	31.0		38.0
Max Q Clear Time (g_c+I1), s		7.5			25.7	14.4		40.3
Green Ext Time (p_c), s		1.4			0.0	1.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1103: NW 6th Ave/NB Off-Ramp/NB On-Ramp & NW 103rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	419	702	0	0	794	347	649	87	556	0	0	0
Future Volume (veh/h)	419	702	0	0	794	347	649	87	556	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1863	1863	1863			
Adj Flow Rate, veh/h	436	731	0	0	827	361	676	91	579			
Adj No. of Lanes	2	2	0	0	2	1	2	1	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	654	1982	0	0	1225	676	1277	671	570			
Arrive On Green	0.12	0.74	0.00	0.00	0.57	0.57	0.36	0.36	0.36			
Sat Flow, veh/h	3442	3632	0	0	3297	1583	3548	1863	1583			
Grp Volume(v), veh/h	436	731	0	0	827	361	676	91	579			
Grp Sat Flow(s),veh/h/ln	1721	1770	0	0	1434	1583	1774	1863	1583			
Q Serve(g_s), s	7.0	7.3	0.0	0.0	20.2	14.1	15.1	3.3	36.0			
Cycle Q Clear(g_c), s	7.0	7.3	0.0	0.0	20.2	14.1	15.1	3.3	36.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	654	1982	0	0	1225	676	1277	671	570			
V/C Ratio(X)	0.67	0.37	0.00	0.00	0.68	0.53	0.53	0.14	1.02			
Avail Cap(c_a), veh/h	1194	1982	0	0	1225	676	1277	671	570			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.92	0.92	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	17.0	6.5	0.0	0.0	16.7	15.4	25.3	21.5	32.0			
Incr Delay (d2), s/veh	0.4	0.5	0.0	0.0	3.0	3.0	0.3	0.1	41.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	5.9	6.4	0.0	0.0	13.3	11.0	11.8	3.1	40.1			
LnGrp Delay(d),s/veh	17.4	7.0	0.0	0.0	19.7	18.4	25.6	21.6	73.7			
LnGrp LOS	B	A			B	B	C	C	F			
Approach Vol, veh/h		1167			1188			1346				
Approach Delay, s/veh		10.9			19.3			46.0				
Approach LOS		B			B			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.3	46.7		40.0		60.0		
Change Period (Y+Rc), s	3.5	* 5.2		* 5.4		* 5.2		
Max Green Setting (Gmax), s	25.5	* 26		* 35		* 55		
Max Q Clear Time (g_c+I1), s	9.0	22.2		38.0		9.3		
Green Ext Time (p_c), s	0.8	1.2		0.0		2.1		

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1104: NW 5th Ave & NW 103rd St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1001	225	100	820	21	268	56	94	16	153	53
Future Volume (veh/h)	33	1001	225	100	820	21	268	56	94	16	153	53
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	38	1164	262	116	953	24	312	65	109	19	178	62
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	264	1455	325	151	1544	39	386	68	114	67	546	181
Arrive On Green	0.04	0.67	0.66	0.58	0.58	0.57	0.42	0.42	0.41	0.42	0.42	0.41
Sat Flow, veh/h	1792	2905	649	378	3563	90	780	162	272	69	1302	431
Grp Volume(v), veh/h	38	712	714	116	478	499	486	0	0	259	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1767	378	1787	1865	1215	0	0	1802	0	0
Q Serve(g_s), s	1.1	28.3	29.2	20.8	17.6	17.6	29.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	28.3	29.2	43.3	17.6	17.6	39.1	0.0	0.0	9.8	0.0	0.0
Prop In Lane	1.00		0.37	1.00		0.05	0.64		0.22	0.07		0.24
Lane Grp Cap(c), veh/h	264	895	885	151	774	808	568	0	0	794	0	0
V/C Ratio(X)	0.14	0.80	0.81	0.77	0.62	0.62	0.86	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	295	895	885	151	774	808	569	0	0	795	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.3	13.1	13.3	35.8	15.7	15.7	29.3	0.0	0.0	19.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	7.3	7.8	30.7	3.7	3.5	11.9	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	22.0	22.5	7.9	14.3	14.8	21.2	0.0	0.0	8.5	0.0	0.0
LnGrp Delay(d),s/veh	16.3	20.3	21.1	66.5	19.4	19.3	41.3	0.0	0.0	19.9	0.0	0.0
LnGrp LOS	B	C	C	E	B	B	D			B		
Approach Vol, veh/h		1464			1093			486			259	
Approach Delay, s/veh		20.6			24.3			41.3			19.9	
Approach LOS		C			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	6.8	47.3		45.9		54.1		45.9
Change Period (Y+Rc), s	3.5	* 4.6		* 4.8		* 4.6		* 4.8
Max Green Setting (Gmax), s	5.0	* 41		* 41		* 49		* 41
Max Q Clear Time (g_c+I1), s	3.1	45.3		41.1		31.2		11.8
Green Ext Time (p_c), s	0.0	0.0		0.0		3.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1201: NW 7th Ave/SR 7 & NW 119th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	993	113	76	976	44	153	462	63	127	2023	296
Future Volume (veh/h)	234	993	113	76	976	44	153	462	63	127	2023	296
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	260	1103	126	84	1084	49	170	513	70	141	2248	329
Adj No. of Lanes	1	3	0	1	3	1	1	3	0	1	3	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	1278	146	223	1366	386	212	1814	244	512	1855	264
Arrive On Green	0.08	0.28	0.25	0.07	0.27	0.24	0.11	0.53	0.49	0.12	0.55	0.51
Sat Flow, veh/h	1774	4631	529	1774	5085	1583	1774	4536	609	1774	4499	641
Grp Volume(v), veh/h	260	807	422	84	1084	49	170	381	202	141	1679	898
Grp Sat Flow(s),veh/h/ln	1774	1695	1769	1774	1695	1583	1774	1695	1755	1774	1695	1750
Q Serve(g_s), s	8.0	22.6	22.7	3.3	19.8	2.4	5.6	6.2	6.5	4.4	41.2	41.2
Cycle Q Clear(g_c), s	8.0	22.6	22.7	3.3	19.8	2.4	5.6	6.2	6.5	4.4	41.2	41.2
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.35	1.00		0.37
Lane Grp Cap(c), veh/h	249	936	488	223	1366	386	212	1356	702	512	1398	722
V/C Ratio(X)	1.05	0.86	0.86	0.38	0.79	0.13	0.80	0.28	0.29	0.28	1.20	1.24
Avail Cap(c_a), veh/h	249	949	495	227	1398	396	212	1356	702	514	1398	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	34.4	34.8	25.7	34.0	29.5	22.4	15.5	16.0	13.8	22.6	23.3
Incr Delay (d2), s/veh	69.4	7.8	13.9	0.4	2.9	0.1	18.1	0.5	1.0	0.1	97.4	121.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.6	17.1	18.8	2.9	14.7	1.9	6.7	5.4	6.0	3.8	68.1	79.0
LnGrp Delay(d),s/veh	101.3	42.2	48.6	26.1	36.9	29.6	40.4	16.0	17.0	13.9	120.0	145.0
LnGrp LOS	F	D	D	C	D	C	D	B	B	B	F	F
Approach Vol, veh/h		1489			1217			753			2718	
Approach Delay, s/veh		54.3			35.8			21.8			122.7	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	45.2	12.0	30.9	13.1	44.0	11.3	31.6
Change Period (Y+Rc), s	6.9	6.9	6.5	6.5	6.9	6.9	6.5	6.5
Max Green Setting (Gmax), s	5.0	37.7	5.5	25.0	6.4	36.3	5.0	25.5
Max Q Clear Time (g_c+I1), s	7.6	43.2	10.0	21.8	6.4	8.5	5.3	24.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.0	1.5	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	76.8
HCM 2010 LOS	E

HCM Unsignalized Intersection Capacity Analysis
1202: SB On-Ramp & NW 119th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1171	12	570	1104	0	0
Future Volume (Veh/h)	1171	12	570	1104	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1273	13	620	1200	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	382			293		
pX, platoon unblocked			0.75		0.85	0.75
vC, conflicting volume			1273		3113	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			706		2144	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			7		100	100
cM capacity (veh/h)			664		2	814

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	636	636	13	620	600	600
Volume Left	0	0	0	620	0	0
Volume Right	0	0	13	0	0	0
cSH	1700	1700	1700	664	1700	1700
Volume to Capacity	0.37	0.37	0.01	0.93	0.35	0.35
Queue Length 95th (ft)	0	0	0	319	0	0
Control Delay (s)	0.0	0.0	0.0	45.6	0.0	0.0
Lane LOS				E		
Approach Delay (s)	0.0			15.5		
Approach LOS						

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		

HCM 2010 Signalized Intersection Summary
1203: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 119th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1133	0	0	1183	83	491	23	487	0	0	0
Future Volume (veh/h)	51	1133	0	0	1183	83	491	23	487	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	53	1168	0	0	1220	86	523	0	0			
Adj No. of Lanes	1	2	0	0	2	0	2	0	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	361	2603	0	0	2238	158	654	0	292			
Arrive On Green	0.04	0.98	0.00	0.00	0.89	0.88	0.18	0.00	0.00			
Sat Flow, veh/h	1774	3632	0	0	3448	236	3548	0	1583			
Grp Volume(v), veh/h	53	1168	0	0	643	663	523	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1821	1774	0	1583			
Q Serve(g_s), s	0.9	1.3	0.0	0.0	7.9	8.1	14.1	0.0	0.0			
Cycle Q Clear(g_c), s	0.9	1.3	0.0	0.0	7.9	8.1	14.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.13	1.00		1.00			
Lane Grp Cap(c), veh/h	361	2603	0	0	1180	1215	654	0	292			
V/C Ratio(X)	0.15	0.45	0.00	0.00	0.54	0.55	0.80	0.00	0.00			
Avail Cap(c_a), veh/h	470	2603	0	0	1180	1215	1171	0	522			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.85	0.85	1.00	0.00	0.00			
Uniform Delay (d), s/veh	5.3	0.3	0.0	0.0	2.3	2.4	39.0	0.0	0.0			
Incr Delay (d2), s/veh	0.1	0.6	0.0	0.0	1.5	1.5	1.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	0.8	1.2	0.0	0.0	7.2	7.4	11.4	0.0	0.0			
LnGrp Delay(d),s/veh	5.3	0.9	0.0	0.0	3.9	3.9	40.7	0.0	0.0			
LnGrp LOS	A	A			A	A	D					
Approach Vol, veh/h		1221			1306			523				
Approach Delay, s/veh		1.1			3.9			40.7				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	6.9	70.7		22.4		77.6		
Change Period (Y+Rc), s	3.0	* 4.9		5.0		* 4.9		
Max Green Setting (Gmax), s	10.0	* 45		32.0		* 58		
Max Q Clear Time (g_c+I1), s	2.9	10.1		16.1		3.3		
Green Ext Time (p_c), s	0.0	3.5		1.3		3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1204: NW 5th Ave & NW 119th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1360	202	96	1096	11	80	41	32	6	121	91
Future Volume (veh/h)	57	1360	202	96	1096	11	80	41	32	6	121	91
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	65	1545	230	109	1245	12	91	47	36	7	138	103
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	345	2104	308	215	2439	24	194	227	174	325	230	172
Arrive On Green	0.91	0.91	0.91	0.91	0.91	0.91	0.23	0.23	0.22	0.23	0.23	0.22
Sat Flow, veh/h	436	3069	449	265	3557	34	1123	970	743	1297	982	733
Grp Volume(v), veh/h	65	871	904	109	613	644	91	0	83	7	0	241
Grp Sat Flow(s),veh/h/ln	436	1752	1765	265	1752	1839	1123	0	1714	1297	0	1715
Q Serve(g_s), s	3.1	12.9	14.4	25.4	5.8	5.8	7.9	0.0	3.9	0.4	0.0	12.5
Cycle Q Clear(g_c), s	8.9	12.9	14.4	39.8	5.8	5.8	20.4	0.0	3.9	4.4	0.0	12.5
Prop In Lane	1.00		0.25	1.00		0.02	1.00		0.43	1.00		0.43
Lane Grp Cap(c), veh/h	345	1202	1210	215	1202	1261	194	0	402	325	0	402
V/C Ratio(X)	0.19	0.72	0.75	0.51	0.51	0.51	0.47	0.00	0.21	0.02	0.00	0.60
Avail Cap(c_a), veh/h	345	1202	1210	215	1202	1261	201	0	411	332	0	412
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.4	2.0	2.1	7.6	1.6	1.6	43.2	0.0	31.0	32.6	0.0	34.3
Incr Delay (d2), s/veh	1.1	3.5	3.8	8.3	1.6	1.5	1.3	0.0	0.2	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	10.7	11.6	4.1	5.5	5.7	4.5	0.0	3.4	0.3	0.0	10.2
LnGrp Delay(d),s/veh	3.5	5.4	5.9	15.8	3.2	3.1	44.5	0.0	31.2	32.6	0.0	36.3
LnGrp LOS	A	A	A	B	A	A	D		C	C		D
Approach Vol, veh/h		1840			1366			174			248	
Approach Delay, s/veh		5.6			4.2			38.1			36.2	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		72.6		27.4		72.6		27.4
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		67.5		23.0		67.5		23.0
Max Q Clear Time (g_c+I1), s		41.8		22.4		16.4		14.5
Green Ext Time (p_c), s		5.7		0.0		7.0		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
1301: NW 7th Ave/SR 7 & NW 125th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	160	12	602	118	181	3	423	232	398	2248	21
Future Volume (veh/h)	26	160	12	602	118	181	3	423	232	398	2248	21
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	172	13	738	0	195	3	455	249	428	2417	23
Adj No. of Lanes	1	2	0	2	0	1	1	3	0	1	3	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	314	24	897	0	726	97	975	455	556	2770	26
Arrive On Green	0.09	0.09	0.07	0.25	0.00	0.25	0.38	0.38	0.35	0.27	0.71	0.68
Sat Flow, veh/h	1774	3338	250	3548	0	1583	139	3390	1583	1774	5195	49
Grp Volume(v), veh/h	28	91	94	738	0	195	3	455	249	428	1576	864
Grp Sat Flow(s),veh/h/ln	1774	1770	1819	1774	0	1583	139	1695	1583	1774	1695	1854
Q Serve(g_s), s	1.5	4.9	5.0	19.6	0.0	7.6	1.7	10.1	12.6	15.8	35.4	35.7
Cycle Q Clear(g_c), s	1.5	4.9	5.0	19.6	0.0	7.6	12.8	10.1	12.6	15.8	35.4	35.7
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	167	166	171	897	0	726	97	975	455	556	1808	989
V/C Ratio(X)	0.17	0.54	0.55	0.82	0.00	0.27	0.03	0.47	0.55	0.77	0.87	0.87
Avail Cap(c_a), veh/h	177	177	182	993	0	769	97	975	455	635	1808	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.00	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	43.2	43.4	35.3	0.0	16.7	30.3	25.1	27.2	16.4	11.9	12.0
Incr Delay (d2), s/veh	0.3	2.3	2.5	4.6	0.0	0.1	0.6	1.6	4.7	4.2	6.1	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	4.5	4.7	15.3	0.0	6.0	0.1	8.6	10.1	12.9	24.5	28.0
LnGrp Delay(d),s/veh	42.0	45.5	45.9	39.9	0.0	16.9	30.9	26.7	31.9	20.6	18.1	22.6
LnGrp LOS	D	D	D	D		B	C	C	C	C	B	C
Approach Vol, veh/h		213			933			707			2868	
Approach Delay, s/veh		45.2			35.1			28.6			19.8	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		57.3		29.3	24.6	32.7		13.4
Change Period (Y+Rc), s		6.4		6.4	6.4	6.4		6.4
Max Green Setting (Gmax), s		47.6		25.6	22.6	18.6		7.6
Max Q Clear Time (g_c+I1), s		37.7		21.6	17.8	14.8		7.0
Green Ext Time (p_c), s		5.9		1.2	0.4	0.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	25.3
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1302: NB On-Ramp/SB Off-Ramp & NW 125th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	618	172	899	528	0	0	0	0	880	36	373
Future Volume (veh/h)	0	618	172	899	528	0	0	0	0	880	36	373
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1881	1881	0				1881	1881	1881
Adj Flow Rate, veh/h	0	679	189	988	580	0				996	0	410
Adj No. of Lanes	0	2	0	2	2	0				2	0	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91				0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	1	1	0				1	1	1
Cap, veh/h	0	959	267	989	2130	0				1161	0	518
Arrive On Green	0.00	0.49	0.48	0.25	0.79	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	2904	729	3476	3668	0				3583	0	1599
Grp Volume(v), veh/h	0	414	454	988	580	0				996	0	410
Grp Sat Flow(s),veh/h/ln	0	1599	1752	1738	1787	0				1792	0	1599
Q Serve(g_s), s	0.0	20.3	20.3	18.9	4.3	0.0				26.0	0.0	23.3
Cycle Q Clear(g_c), s	0.0	20.3	20.3	18.9	4.3	0.0				26.0	0.0	23.3
Prop In Lane	0.00		0.42	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	585	641	989	2130	0				1161	0	518
V/C Ratio(X)	0.00	0.71	0.71	1.00	0.27	0.00				0.86	0.00	0.79
Avail Cap(c_a), veh/h	0	585	641	989	2130	0				1397	0	624
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.58	0.58	0.33	0.33	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.5	21.6	18.2	4.6	0.0				31.6	0.0	30.7
Incr Delay (d2), s/veh	0.0	4.2	3.8	16.1	0.1	0.0				4.5	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	13.4	14.5	19.5	3.4	0.0				19.6	0.0	16.5
LnGrp Delay(d),s/veh	0.0	25.7	25.4	34.3	4.7	0.0				36.1	0.0	36.0
LnGrp LOS		C	C	C	A					D		D
Approach Vol, veh/h		868			1568						1406	
Approach Delay, s/veh		25.5			23.3						36.1	
Approach LOS		C			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		63.6			23.0	40.6		36.4
Change Period (Y+Rc), s		* 4.4			3.0	* 4.4		5.0
Max Green Setting (Gmax), s		* 53			20.0	* 30		38.0
Max Q Clear Time (g_c+I1), s		6.3			20.9	22.3		28.0
Green Ext Time (p_c), s		1.6			0.0	1.5		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2045 Build Scenario

1303: NW 6th Ave/NB Off-Ramp/NW 6th Ave/NB On-Ramp & NW 125th St
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	1228	0	0	1420	590	7	35	54	0	0	0
Future Volume (veh/h)	270	1228	0	0	1420	590	7	35	54	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1845	1845	0	0	1845	1845	1900	1845	1845			
Adj Flow Rate, veh/h	300	1364	0	0	1578	656	8	39	60			
Adj No. of Lanes	1	2	0	0	2	1	0	2	2			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	3	3	3			
Cap, veh/h	361	2908	0	0	2007	1015	52	270	183			
Arrive On Green	0.16	1.00	0.00	0.00	0.89	0.86	0.09	0.09	0.07			
Sat Flow, veh/h	1757	3597	0	0	3339	1568	577	2991	2760			
Grp Volume(v), veh/h	300	1364	0	0	1578	656	25	22	60			
Grp Sat Flow(s),veh/h/ln	1757	1752	0	0	1494	1568	1816	1752	1380			
Q Serve(g_s), s	7.3	0.0	0.0	0.0	19.0	13.1	1.3	1.1	2.1			
Cycle Q Clear(g_c), s	7.3	0.0	0.0	0.0	19.0	13.1	1.3	1.1	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	0.32		1.00			
Lane Grp Cap(c), veh/h	361	2908	0	0	2007	1015	164	158	183			
V/C Ratio(X)	0.83	0.47	0.00	0.00	0.79	0.65	0.15	0.14	0.33			
Avail Cap(c_a), veh/h	382	2908	0	0	2007	1015	381	368	513			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.22	0.22	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	22.1	0.0	0.0	0.0	2.8	3.4	41.9	41.9	44.5			
Incr Delay (d2), s/veh	3.2	0.1	0.0	0.0	3.2	3.2	0.3	0.3	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	10.3	0.1	0.0	0.0	12.5	10.4	1.2	1.0	1.5			
LnGrp Delay(d),s/veh	25.3	0.1	0.0	0.0	6.0	6.5	42.3	42.2	45.3			
LnGrp LOS	C	A			A	A	D	D	D			
Approach Vol, veh/h		1664			2234			107				
Approach Delay, s/veh		4.7			6.1			44.0				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	15.8	71.1		13.0		87.0		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	10.6	51.6		18.6		68.6		
Max Q Clear Time (g_c+I1), s	9.3	21.0		4.1		2.0		
Green Ext Time (p_c), s	0.1	6.3		0.3		4.8		

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1401: NW 7th Ave/SR 7 & NW 135th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	1180	152	0	0	0	0	395	451	382	2578	0
Future Volume (veh/h)	72	1180	152	0	0	0	0	395	451	382	2578	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1827				0	1827	1900	1827	1827	0
Adj Flow Rate, veh/h	75	1229	158				0	411	470	398	2685	0
Adj No. of Lanes	1	3	1				0	3	0	1	3	0
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	4	4	4				0	4	4	4	4	0
Cap, veh/h	520	1490	464				0	1372	641	476	3103	0
Arrive On Green	0.30	0.30	0.30				0.00	0.55	0.52	0.23	0.83	0.00
Sat Flow, veh/h	1740	4988	1553				0	3489	1553	1740	5152	0
Grp Volume(v), veh/h	75	1229	158				0	411	470	398	2685	0
Grp Sat Flow(s),veh/h/ln	1740	1663	1553				0	1663	1553	1740	1663	0
Q Serve(g_s), s	3.2	23.2	8.0				0.0	6.7	23.8	12.3	33.0	0.0
Cycle Q Clear(g_c), s	3.2	23.2	8.0				0.0	6.7	23.8	12.3	33.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	520	1490	464				0	1372	641	476	3103	0
V/C Ratio(X)	0.14	0.83	0.34				0.00	0.30	0.73	0.84	0.87	0.00
Avail Cap(c_a), veh/h	541	1551	483				0	1372	641	618	3103	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.09	0.09	0.00
Uniform Delay (d), s/veh	26.0	33.0	27.7				0.0	14.9	20.1	16.1	6.1	0.0
Incr Delay (d2), s/veh	0.1	3.6	0.3				0.0	0.6	7.3	0.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	16.5	6.2				0.0	5.6	16.9	7.0	16.1	0.0
LnGrp Delay(d),s/veh	26.1	36.5	28.0				0.0	15.5	27.4	16.7	6.5	0.0
LnGrp LOS	C	D	C					B	C	B	A	
Approach Vol, veh/h		1462						881			3083	
Approach Delay, s/veh		35.1						21.8			7.8	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	21.2	45.7		34.2		66.8		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	23.0	30.2		29.0		59.6		
Max Q Clear Time (g_c+I1), s	14.3	25.8		25.2		35.0		
Green Ext Time (p_c), s	0.5	1.2		2.6		12.7		

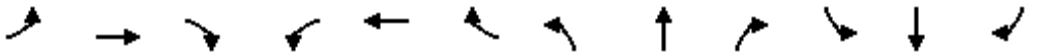
Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM Signalized Intersection Capacity Analysis
1402: SB On-Ramp/NW 6th Ct & NW 135th St

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1650	363	0	0	0	0	0	0	379	503	0
Future Volume (vph)	0	1650	363	0	0	0	0	0	0	379	503	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0							4.0	4.0	
Lane Util. Factor		0.86	0.88							0.91	0.91	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	0.99	
Satd. Flow (prot)		6225	2707							1564	3263	
Flt Permitted		1.00	1.00							0.95	0.99	
Satd. Flow (perm)		6225	2707							1564	3263	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	1719	378	0	0	0	0	0	0	395	524	0
RTOR Reduction (vph)	0	0	213	0	0	0	0	0	0	17	17	0
Lane Group Flow (vph)	0	1719	165	0	0	0	0	0	0	259	626	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type		NA	Perm							custom	NA	
Protected Phases		2								4	4	
Permitted Phases			2							4		
Actuated Green, G (s)		31.2	31.2							55.2	55.2	
Effective Green, g (s)		34.0	34.0							58.0	58.0	
Actuated g/C Ratio		0.34	0.34							0.58	0.58	
Clearance Time (s)		6.8	6.8							6.8	6.8	
Vehicle Extension (s)		1.0	1.0							2.5	2.5	
Lane Grp Cap (vph)		2116	920							907	1892	
v/s Ratio Prot		c0.28								0.17	c0.19	
v/s Ratio Perm			0.06									
v/c Ratio		0.81	0.18							0.29	0.33	
Uniform Delay, d1		30.1	23.2							10.6	10.9	
Progression Factor		1.00	1.00							1.00	1.00	
Incremental Delay, d2		3.5	0.4							0.1	0.1	
Delay (s)		33.6	23.6							10.7	11.0	
Level of Service		C	C							B	B	
Approach Delay (s)		31.8			0.0			0.0			10.9	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

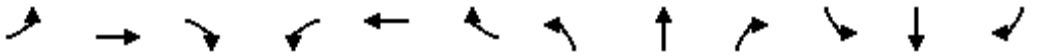
Queues
1402: SB On-Ramp/NW 6th Ct & NW 135th St

Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	1719	378	276	643
v/c Ratio	0.81	0.33	0.30	0.34
Control Delay	33.9	5.5	10.0	10.8
Queue Delay	2.5	0.0	0.0	0.0
Total Delay	36.4	5.5	10.0	10.8
Queue Length 50th (ft)	287	13	75	102
Queue Length 95th (ft)	335	48	128	137
Internal Link Dist (ft)	302			402
Turn Bay Length (ft)		170	190	
Base Capacity (vph)	2116	1132	924	1910
Starvation Cap Reductn	272	0	0	0
Spillback Cap Reductn	24	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.93	0.33	0.30	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1403: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 135th St

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1243	787	0	0	0	0	0	1550	809	0	0	0
Future Volume (vph)	1243	787	0	0	0	0	0	1550	809	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						4.0	4.0			
Lane Util. Factor	0.97	0.91						0.91	0.88			
Frt	1.00	1.00						1.00	0.85			
Flt Protected	0.95	1.00						1.00	1.00			
Satd. Flow (prot)	3335	4940						4940	2707			
Flt Permitted	0.95	1.00						1.00	1.00			
Satd. Flow (perm)	3335	4940						4940	2707			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1351	855	0	0	0	0	0	1685	879	0	0	0
RTOR Reduction (vph)	21	0	0	0	0	0	0	0	101	0	0	0
Lane Group Flow (vph)	1330	855	0	0	0	0	0	1685	778	0	0	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	custom	NA						NA	Perm			
Protected Phases	2 7	2 7						8				
Permitted Phases	2 7								8			
Actuated Green, G (s)	45.2	45.2						41.2	41.2			
Effective Green, g (s)	48.0	48.0						44.0	44.0			
Actuated g/C Ratio	0.48	0.48						0.44	0.44			
Clearance Time (s)								6.8	6.8			
Vehicle Extension (s)								2.5	2.5			
Lane Grp Cap (vph)	1600	2371						2173	1191			
v/s Ratio Prot	c0.40	0.17						c0.34				
v/s Ratio Perm									0.29			
v/c Ratio	0.83	0.36						0.78	0.65			
Uniform Delay, d1	22.5	16.4						23.8	22.0			
Progression Factor	0.30	0.28						1.00	1.00			
Incremental Delay, d2	2.7	0.0						1.7	1.2			
Delay (s)	9.5	4.7						25.5	23.2			
Level of Service	A	A						C	C			
Approach Delay (s)		7.6			0.0			24.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1403: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 135th St

Lane Group	EBL	EBT	NBT	NBR
Lane Group Flow (vph)	1351	855	1685	879
v/c Ratio	0.83	0.36	0.78	0.68
Control Delay	10.5	5.0	26.9	20.6
Queue Delay	7.4	0.6	0.0	0.0
Total Delay	17.9	5.6	26.9	20.6
Queue Length 50th (ft)	61	29	325	197
Queue Length 95th (ft)	82	40	386	275
Internal Link Dist (ft)		165	421	
Turn Bay Length (ft)				
Base Capacity (vph)	1622	2371	2173	1292
Starvation Cap Reductn	240	1032	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.98	0.64	0.78	0.68

Intersection Summary

HCM 2010 Signalized Intersection Summary
1404: NW 7th Ave/SR 7 & Opa-Locka Blvd

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	418	1467	78	190	277	0	0	2542	148
Future Volume (veh/h)	0	0	0	418	1467	78	190	277	0	0	2542	148
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1827	1827	1827	1827	1827	0	0	1827	1900
Adj Flow Rate, veh/h				445	1561	83	202	295	0	0	2704	157
Adj No. of Lanes				1	3	1	1	3	0	0	3	0
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				4	4	4	4	4	0	0	4	4
Cap, veh/h				539	1699	481	236	3042	0	0	2298	131
Arrive On Green				0.31	0.31	0.31	0.09	0.61	0.00	0.00	0.48	0.45
Sat Flow, veh/h				1740	5481	1553	1740	5152	0	0	4992	276
Grp Volume(v), veh/h				445	1561	83	202	295	0	0	1848	1013
Grp Sat Flow(s),veh/h/ln				1740	1827	1553	1740	1663	0	0	1663	1778
Q Serve(g_s), s				23.7	27.5	3.9	7.2	2.5	0.0	0.0	47.6	47.6
Cycle Q Clear(g_c), s				23.7	27.5	3.9	7.2	2.5	0.0	0.0	47.6	47.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.15
Lane Grp Cap(c), veh/h				539	1699	481	236	3042	0	0	1583	846
V/C Ratio(X)				0.83	0.92	0.17	0.86	0.10	0.00	0.00	1.17	1.20
Avail Cap(c_a), veh/h				539	1699	481	236	3042	0	0	1583	846
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.51	0.51	0.51	0.88	0.88	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.0	33.3	25.1	28.4	8.1	0.0	0.0	26.2	26.4
Incr Delay (d2), s/veh				5.1	4.6	0.0	22.3	0.1	0.0	0.0	82.6	100.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				16.2	19.1	3.0	10.9	2.0	0.0	0.0	71.9	84.3
LnGrp Delay(d),s/veh				37.1	37.9	25.2	50.7	8.1	0.0	0.0	108.8	126.4
LnGrp LOS				D	D	C	D	A			F	F
Approach Vol, veh/h					2089			497			2861	
Approach Delay, s/veh					37.2			25.4			115.1	
Approach LOS					D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.4	51.6		35.0		65.0		
Change Period (Y+Rc), s	6.4	6.4		* 6.7		6.4		
Max Green Setting (Gmax), s	7.0	45.2		* 28		58.6		
Max Q Clear Time (g_c+I1), s	9.2	49.6		29.5		4.5		
Green Ext Time (p_c), s	0.0	0.0		0.0		0.8		

Intersection Summary	
HCM 2010 Ctrl Delay	77.0
HCM 2010 LOS	E

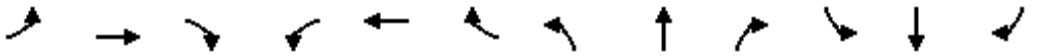
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1405: NW 6th Ct/NW 6th Ct/SB Off-Ramp & Opa-Locka Blvd

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	444	1671	0	0	0	0	0	439	291
Future Volume (vph)	0	0	0	444	1671	0	0	0	0	0	439	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.94	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1507	4753						3295	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1507	4753						3295	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	483	1816	0	0	0	0	0	477	316
RTOR Reduction (vph)	0	0	0	135	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	300	1847	0	0	0	0	0	789	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type				Perm	NA						NA	
Protected Phases					2 7						8	
Permitted Phases				2 7								
Actuated Green, G (s)				51.6	51.6						45.6	
Effective Green, g (s)				53.6	53.6						48.0	
Actuated g/C Ratio				0.49	0.49						0.44	
Clearance Time (s)											6.4	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)				734	2316						1437	
v/s Ratio Prot											c0.24	
v/s Ratio Perm				0.20	0.39							
v/c Ratio				0.41	0.80						0.55	
Uniform Delay, d1				18.1	23.6						23.0	
Progression Factor				0.53	0.93						1.00	
Incremental Delay, d2				0.2	1.1						0.4	
Delay (s)				9.7	23.0						23.4	
Level of Service				A	C						C	
Approach Delay (s)		0.0			20.5			0.0			23.4	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.4
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1405: NW 6th Ct/NW 6th Ct/SB Off-Ramp & Opa-Locka Blvd

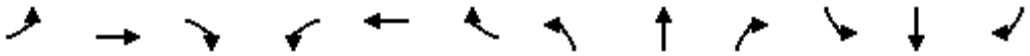
Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	435	1864	793
v/c Ratio	0.50	0.79	0.55
Control Delay	4.8	23.0	24.6
Queue Delay	0.5	0.9	0.0
Total Delay	5.3	23.9	24.6
Queue Length 50th (ft)	37	495	211
Queue Length 95th (ft)	m53	m483	272
Internal Link Dist (ft)		151	338
Turn Bay Length (ft)			
Base Capacity (vph)	873	2351	1441
Starvation Cap Reductn	151	226	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.88	0.55

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1406: NW 6th Ave/NW 6th Ave/NB On-Ramp & Opa-Locka Blvd

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1196	519	919	1873	0	0	0	0
Future Volume (vph)	0	0	0	0	1196	519	919	1873	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.86	1.00		0.86				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.98				
Satd. Flow (prot)					6346	1568		4682				
Flt Permitted					1.00	1.00		0.98				
Satd. Flow (perm)					6346	1568		4682				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1300	564	999	2036	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	59	0	14	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1300	505	0	3021	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					41.0	41.0		56.6				
Effective Green, g (s)					43.0	43.0		59.0				
Actuated g/C Ratio					0.39	0.39		0.54				
Clearance Time (s)					6.0	6.0		6.4				
Vehicle Extension (s)					1.0	1.0		3.0				
Lane Grp Cap (vph)					2480	612		2511				
v/s Ratio Prot					0.20							
v/s Ratio Perm						c0.32		0.65				
v/c Ratio					0.52	0.83		1.20				
Uniform Delay, d1					25.7	30.1		25.5				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.8	12.0		95.5				
Delay (s)					26.5	42.1		121.0				
Level of Service					C	D		F				
Approach Delay (s)		0.0			31.2			121.0			0.0	
Approach LOS		A			C			F			A	

Intersection Summary			
HCM 2000 Control Delay	86.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1406: NW 6th Ave/NW 6th Ave/NB On-Ramp & Opa-Locka Blvd

Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	1300	564	3035
v/c Ratio	0.52	0.84	1.20
Control Delay	26.6	37.9	120.8
Queue Delay	0.2	0.0	0.3
Total Delay	26.8	37.9	121.1
Queue Length 50th (ft)	201	303	~1013
Queue Length 95th (ft)	236	#504	#1107
Internal Link Dist (ft)	475		403
Turn Bay Length (ft)		225	
Base Capacity (vph)	2480	672	2525
Starvation Cap Reductn	0	0	304
Spillback Cap Reductn	359	0	214
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.61	0.84	1.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1501: NW 7th Ave/SR 7 & NW 151st St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	95	13	279	129	205	9	328	175	107	727	18
Future Volume (veh/h)	57	95	13	279	129	205	9	328	175	107	727	18
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	58	97	13	285	132	209	9	335	179	109	742	18
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	159	306	40	450	564	573	431	1795	838	580	3182	77
Arrive On Green	0.10	0.10	0.08	0.18	0.31	0.30	0.53	0.53	0.52	0.06	0.63	0.61
Sat Flow, veh/h	1025	3115	410	1757	1845	1568	696	3357	1568	1757	5058	122
Grp Volume(v), veh/h	58	54	56	285	132	209	9	335	179	109	492	268
Grp Sat Flow(s),veh/h/ln	1025	1752	1772	1757	1845	1568	696	1679	1568	1757	1679	1823
Q Serve(g_s), s	6.7	3.5	3.6	17.0	6.6	12.0	0.8	6.3	7.6	3.2	7.8	7.9
Cycle Q Clear(g_c), s	6.7	3.5	3.6	17.0	6.6	12.0	0.8	6.3	7.6	3.2	7.8	7.9
Prop In Lane	1.00		0.23	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	159	172	174	450	564	573	431	1795	838	580	2112	1147
V/C Ratio(X)	0.36	0.31	0.32	0.63	0.23	0.36	0.02	0.19	0.21	0.19	0.23	0.23
Avail Cap(c_a), veh/h	317	442	447	471	870	833	431	1795	838	757	2112	1147
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	51.6	51.9	37.5	31.9	28.6	13.5	14.8	15.7	10.3	9.9	10.0
Incr Delay (d2), s/veh	1.4	1.0	1.1	2.6	0.2	0.4	0.1	0.2	0.6	0.2	0.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.5	3.2	3.3	13.4	6.1	9.0	0.3	5.4	6.2	2.8	6.7	7.4
LnGrp Delay(d),s/veh	54.4	52.6	53.0	40.1	32.1	29.0	13.6	15.0	16.3	10.4	10.2	10.4
LnGrp LOS	D	D	D	D	C	C	B	B	B	B	B	B
Approach Vol, veh/h		168			626			523			869	
Approach Delay, s/veh		53.3			34.7			15.4			10.3	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6	7	8
Phs Duration (G+Y+Rc), s		81.4		41.6	11.6	69.8	25.5	16.1
Change Period (Y+Rc), s		6.4		* 6.7	6.4	6.4	6.4	* 6.7
Max Green Setting (Gmax), s		54.7		* 55	17.6	30.7	20.6	* 28
Max Q Clear Time (g_c+I1), s		9.9		14.0	5.2	9.6	19.0	8.7
Green Ext Time (p_c), s		5.8		1.5	0.2	3.4	0.2	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	21.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1503: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 151st St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	72	0	0	226	10	72	232	34	38	0	753
Future Volume (vph)	106	72	0	0	226	10	72	232	34	38	0	753
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0		4.8	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00		1.00	
Frt	1.00	1.00			0.99		1.00	1.00	0.85		0.87	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1752	1845			1834		1752	1845	1568		1604	
Flt Permitted	0.60	1.00			1.00		0.95	1.00	1.00		0.37	
Satd. Flow (perm)	1110	1845			1834		1752	1845	1568		592	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	114	77	0	0	243	11	77	249	37	41	0	810
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	28	0	318	0
Lane Group Flow (vph)	114	77	0	0	252	0	77	249	9	0	533	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA			NA		Split	NA	Perm	Perm	NA	
Protected Phases		6!			2!		4	4			6!	
Permitted Phases	6!								4	6!		
Actuated Green, G (s)	33.8	33.8			33.8		12.8	12.8	12.8		33.8	
Effective Green, g (s)	35.4	35.4			35.4		13.6	13.6	13.6		34.6	
Actuated g/C Ratio	0.62	0.62			0.62		0.24	0.24	0.24		0.61	
Clearance Time (s)	5.6	5.6			5.6		4.8	4.8	4.8		5.6	
Vehicle Extension (s)	1.0	1.0			1.0		2.5	2.5	2.5		1.0	
Lane Grp Cap (vph)	689	1145			1139		418	440	374		359	
v/s Ratio Prot		0.04			0.14		0.04	c0.13				
v/s Ratio Perm	0.10								0.01		c0.90	
v/c Ratio	0.17	0.07			0.22		0.18	0.57	0.02		1.48	
Uniform Delay, d1	4.6	4.3			4.7		17.3	19.1	16.6		11.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.0			0.4		0.2	1.4	0.0		232.1	
Delay (s)	4.6	4.3			5.2		17.4	20.5	16.6		243.3	
Level of Service	A	A			A		B	C	B		F	
Approach Delay (s)		4.5			5.2			19.4			243.3	
Approach LOS		A			A			B			F	

Intersection Summary			
HCM 2000 Control Delay	130.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	8.8
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	114	77	254	77	249	37	851
v/c Ratio	0.17	0.07	0.22	0.19	0.57	0.09	1.05
Control Delay	6.6	5.7	6.2	16.7	23.6	4.3	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	5.7	6.2	16.7	23.6	4.3	53.0
Queue Length 50th (ft)	14	9	31	21	75	0	~30
Queue Length 95th (ft)	43	28	78	42	117	13	#220
Internal Link Dist (ft)		229	317		343		406
Turn Bay Length (ft)	125						
Base Capacity (vph)	690	1147	1142	799	841	742	810
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.07	0.22	0.10	0.30	0.05	1.05

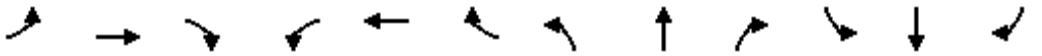
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1601: NW 7th Ave/SR 7 & GGI SB Off-Ramp

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	1272	0	12	0	791	0	0	1368	0
Future Volume (vph)	0	0	0	1272	0	12	0	791	0	0	1368	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0		4.0			4.0	
Lane Util. Factor				0.91		0.95		0.95			0.91	
Frt				1.00		0.85		1.00			1.00	
Flt Protected				0.95		1.00		1.00			1.00	
Satd. Flow (prot)				3129		1461		3438			4940	
Flt Permitted				0.95		1.00		1.00			1.00	
Satd. Flow (perm)				3129		1461		3438			4940	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.97	0.92	0.97	0.97	0.97	0.97	0.92
Adj. Flow (vph)	0	0	0	1311	0	12	0	815	0	0	1410	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1311	0	12	0	815	0	0	1410	0
Heavy Vehicles (%)	2%	2%	2%	5%	2%	5%	2%	5%	5%	5%	5%	2%
Turn Type	Perm		Perm	Prot		Free	Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases	4		4			Free	2					
Actuated Green, G (s)				27.0		63.3		23.5			23.5	
Effective Green, g (s)				29.4		63.3		25.9			25.9	
Actuated g/C Ratio				0.46		1.00		0.41			0.41	
Clearance Time (s)				6.4				6.4			6.4	
Vehicle Extension (s)				2.5				1.0			1.0	
Lane Grp Cap (vph)				1453		1461		1406			2021	
v/s Ratio Prot				c0.42				0.24			c0.29	
v/s Ratio Perm						0.01						
v/c Ratio				0.90		0.01		0.58			0.70	
Uniform Delay, d1				15.6		0.0		14.5			15.5	
Progression Factor				1.00		1.00		1.00			1.00	
Incremental Delay, d2				8.1		0.0		0.4			0.9	
Delay (s)				23.7		0.0		14.8			16.3	
Level of Service				C		A		B			B	
Approach Delay (s)		0.0			23.5			14.8			16.3	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	12.5
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
1601: NW 7th Ave/SR 7 & GGI SB Off-Ramp

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	1311	12	815	1410
v/c Ratio	0.90	0.01	0.58	0.70
Control Delay	27.9	0.0	16.2	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.9	0.0	16.2	17.4
Queue Length 50th (ft)	239	0	122	157
Queue Length 95th (ft)	#462	0	170	200
Internal Link Dist (ft)			300	468
Turn Bay Length (ft)	300			
Base Capacity (vph)	1453	1461	1891	2718
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.90	0.01	0.43	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1602: NW 7th Ave/SR 7 & Park and Ride

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	20	26	3	11	106	5	781	9	145	1319	199
Future Volume (veh/h)	208	20	26	3	11	106	5	781	9	145	1319	199
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1776	1776	1776	1776	1776	1776	1776	1776	1900
Adj Flow Rate, veh/h	226	0	0	3	11	0	5	797	0	148	1346	0
Adj No. of Lanes	2	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	7	7	7	7	7	7	7	7	7	7	7
Cap, veh/h	480	252	0	72	76	65	255	1383	589	477	1637	0
Arrive On Green	0.14	0.00	0.00	0.04	0.04	0.00	0.04	0.41	0.00	0.11	0.49	0.00
Sat Flow, veh/h	3382	1776	0	1691	1776	1509	1691	3374	1509	1691	3463	0
Grp Volume(v), veh/h	226	0	0	3	11	0	5	797	0	148	1346	0
Grp Sat Flow(s),veh/h/ln	1691	1776	0	1691	1776	1509	1691	1687	1509	1691	1687	0
Q Serve(g_s), s	3.4	0.0	0.0	0.1	0.3	0.0	0.1	10.0	0.0	2.3	18.7	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.1	0.3	0.0	0.1	10.0	0.0	2.3	18.7	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	480	252	0	72	76	65	255	1383	589	477	1637	0
V/C Ratio(X)	0.47	0.00	0.00	0.04	0.14	0.00	0.02	0.58	0.00	0.31	0.82	0.00
Avail Cap(c_a), veh/h	556	292	0	247	260	221	963	7348	3257	496	6226	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	25.1	25.2	0.0	10.0	12.5	0.0	7.2	12.1	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.2	0.6	0.0	0.0	0.1	0.0	0.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	0.0	0.0	0.1	0.3	0.0	0.1	8.1	0.0	1.8	13.5	0.0
LnGrp Delay(d),s/veh	22.1	0.0	0.0	25.3	25.9	0.0	10.0	12.6	0.0	7.5	12.5	0.0
LnGrp LOS	C			C	C		B	B		A	B	
Approach Vol, veh/h		226			14			802			1494	
Approach Delay, s/veh		22.1			25.7			12.6			12.0	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	26.4		11.8	6.1	30.6		6.3
Change Period (Y+Rc), s	5.7	* 5.1		5.0	5.7	* 5.1		5.0
Max Green Setting (Gmax), s	5.1	* 1.2E2		8.0	23.3	* 1E2		7.0
Max Q Clear Time (g_c+I1), s	4.3	12.0		5.4	2.1	20.7		2.3
Green Ext Time (p_c), s	0.0	2.3		0.2	0.0	4.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

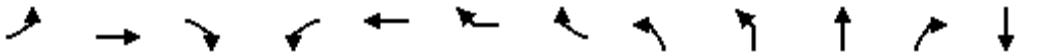
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1603: NW 2nd Ave & NW 167th St & NB On-Ramp (US 441)

2045 Build Scenario
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBT
Lane Configurations												
Traffic Volume (vph)	772	2246	1053	34	2010	96	51	595	179	166	13	12
Future Volume (vph)	772	2246	1053	34	2010	96	51	595	179	166	13	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.0	3.5	4.0		5.0		3.0	4.0		4.0
Lane Util. Factor	0.97	0.91	1.00	1.00	*0.96		*1.00		0.95	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		0.85		1.00	0.99		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00		0.95	1.00		1.00
Satd. Flow (prot)	3433	5085	1583	1770	5328		1583		1681	1842		1623
Flt Permitted	0.95	1.00	1.00	0.95	1.00		1.00		0.95	1.00		1.00
Satd. Flow (perm)	3433	5085	1583	1770	5328		1583		1681	1842		1623
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	813	2364	1108	36	2116	101	54	626	188	175	14	13
RTOR Reduction (vph)	0	0	0	0	0	0	36	0	0	3	0	11
Lane Group Flow (vph)	813	2364	1108	36	2217	0	18	0	814	186	0	260
Turn Type	Prot	NA	Free	Prot	NA		Perm	Prot	Prot	NA		NA
Protected Phases	1	6		5	2			7	7	4		8
Permitted Phases			Free				2					
Actuated Green, G (s)	5.6	34.0	91.8	3.3	30.8		30.8		25.5	38.1		8.1
Effective Green, g (s)	7.0	35.0	91.8	4.3	31.8		30.8		27.0	41.0		11.0
Actuated g/C Ratio	0.08	0.38	1.00	0.05	0.35		0.34		0.29	0.45		0.12
Clearance Time (s)	5.4	5.0		4.5	5.0		5.0		4.5	6.9		6.9
Vehicle Extension (s)	4.5	1.0		3.0	1.0		1.0		3.0	2.5		2.5
Lane Grp Cap (vph)	261	1938	1583	82	1845		531		494	822		194
v/s Ratio Prot	c0.24	c0.46		0.02	0.42				c0.48	0.10		c0.16
v/s Ratio Perm			c0.70				0.01					
v/c Ratio	3.11	1.22	0.70	0.44	1.20		0.03		1.65	0.23		1.34
Uniform Delay, d1	42.4	28.4	0.0	42.6	30.0		20.5		32.4	15.6		40.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00		1.00
Incremental Delay, d2	961.8	103.8	2.6	3.7	96.2		0.0		300.5	0.1		182.7
Delay (s)	1004.2	132.2	2.6	46.3	126.2		20.5		332.9	15.7		223.1
Level of Service	F	F	A	D	F		C		F	B		F
Approach Delay (s)		264.1			122.5					273.1		223.1
Approach LOS		F			F					F		F

Intersection Summary			
HCM 2000 Control Delay	222.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

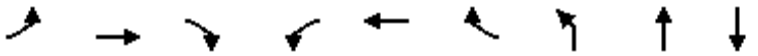
c Critical Lane Group

Movement	SBR	SBR2
Lane Configurations		
Traffic Volume (vph)	189	56
Future Volume (vph)	189	56
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	199	59
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Queues

1603: NW 2nd Ave & NW 167th St & NB On-Ramp (US 441)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL	NBT	SBT
Lane Group Flow (vph)	813	2364	1108	36	2217	54	814	189	271
v/c Ratio	3.04	1.20	0.70	0.28	1.25	0.09	1.62	0.22	1.30
Control Delay	947.9	121.1	2.6	45.6	145.7	0.3	312.1	15.3	197.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	947.9	121.1	2.6	45.6	145.7	0.3	312.1	15.3	197.4
Queue Length 50th (ft)	~418	~651	0	20	~551	0	~707	61	~193
Queue Length 95th (ft)	#532	#747	0	50	#642	0	#941	104	#348
Internal Link Dist (ft)		343			1250			512	496
Turn Bay Length (ft)	230		290	200		110	230		
Base Capacity (vph)	267	1977	1583	127	1775	615	504	842	209
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.04	1.20	0.70	0.28	1.25	0.09	1.62	0.22	1.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1604: N Miami Ave & NW 167th St

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1894	60	148	1914	48	187	100	110	58	62	34
Future Volume (veh/h)	94	1894	60	148	1914	48	187	100	110	58	62	34
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	97	1953	62	153	1973	49	193	103	113	60	64	35
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	3234	103	252	3302	82	249	126	139	130	109	60
Arrive On Green	0.05	0.85	0.84	0.07	0.86	0.85	0.09	0.16	0.14	0.03	0.10	0.08
Sat Flow, veh/h	1774	5064	161	1774	5104	127	1774	813	892	1774	1133	620
Grp Volume(v), veh/h	97	1306	709	153	1310	712	193	0	216	60	0	99
Grp Sat Flow(s),veh/h/ln	1774	1695	1834	1774	1695	1840	1774	0	1705	1774	0	1753
Q Serve(g_s), s	2.4	15.5	15.6	3.9	14.4	14.5	12.0	0.0	16.0	4.0	0.0	7.0
Cycle Q Clear(g_c), s	2.4	15.5	15.6	3.9	14.4	14.5	12.0	0.0	16.0	4.0	0.0	7.0
Prop In Lane	1.00		0.09	1.00		0.07	1.00		0.52	1.00		0.35
Lane Grp Cap(c), veh/h	240	2165	1172	252	2193	1191	249	0	265	130	0	169
V/C Ratio(X)	0.40	0.60	0.60	0.61	0.60	0.60	0.78	0.00	0.82	0.46	0.00	0.58
Avail Cap(c_a), veh/h	481	2165	1172	273	2193	1191	249	0	400	153	0	330
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.3	4.7	4.7	10.1	4.2	4.2	49.5	0.0	53.5	53.5	0.0	56.5
Incr Delay (d2), s/veh	0.0	0.1	0.2	2.1	1.2	2.2	13.0	0.0	6.3	0.9	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	8.3	9.0	4.1	11.1	12.4	11.5	0.0	12.6	3.6	0.0	6.4
LnGrp Delay(d),s/veh	8.4	4.8	4.9	12.2	5.4	6.5	62.4	0.0	59.8	54.4	0.0	58.9
LnGrp LOS	A	A	A	B	A	A	E		E	D		E
Approach Vol, veh/h		2112			2175			409			159	
Approach Delay, s/veh		5.0			6.2			61.1			57.2	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	88.1	8.4	24.2	10.4	87.0	16.0	16.5
Change Period (Y+Rc), s	4.5	* 4.9	3.0	5.5	4.5	* 4.9	3.0	5.5
Max Green Setting (Gmax), s	22.5	* 54	7.0	29.0	7.5	* 69	13.0	23.0
Max Q Clear Time (g_c+I1), s	4.4	16.5	6.0	18.0	5.9	17.6	14.0	9.0
Green Ext Time (p_c), s	0.1	7.3	0.0	0.7	0.0	7.4	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1606: NW 7th Avenue Extension & NW 4th Ave & NW 171st St/NW 7th Ave

2045 Build Scenario
Timing Plan: AM Peak Hour

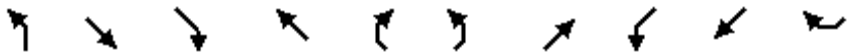
Movement	NBL2	NBL	NBR	SEL	SET	SER	SER2	NWL	NWT	NWR	NEL	NET
Lane Configurations												
Traffic Volume (vph)	29	10	58	199	17	11	316	116	42	54	36	815
Future Volume (vph)	29	10	58	199	17	11	316	116	42	54	36	815
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0			4.0	6.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00	1.00	0.95
Frt		0.92			1.00	0.85			1.00	0.85	1.00	0.97
Flt Protected		0.98			0.96	1.00			0.96	1.00	0.95	1.00
Satd. Flow (prot)		1679			1781	1583			1797	1583	1770	3432
Flt Permitted		0.98			0.96	1.00			0.49	1.00	0.10	1.00
Satd. Flow (perm)		1679			1781	1583			912	1583	192	3432
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	11	63	216	18	12	343	126	46	59	39	886
RTOR Reduction (vph)	0	0	0	0	0	149	0	0	0	44	0	2
Lane Group Flow (vph)	0	106	0	0	234	206	0	0	172	15	39	1107
Turn Type	Prot	Prot		Split	NA	Prot		Perm	NA	Perm	pm+pt	NA
Protected Phases	4	4		8!	8	8			8!		1	6
Permitted Phases								8		8	6	
Actuated Green, G (s)		9.9			24.9	24.9			24.9	24.9	43.8	43.8
Effective Green, g (s)		11.9			26.9	26.9			26.9	24.9	45.8	45.8
Actuated g/C Ratio		0.12			0.28	0.28			0.28	0.26	0.47	0.47
Clearance Time (s)		6.0			6.0	6.0			6.0	6.0	6.0	6.0
Vehicle Extension (s)		2.5			2.5	2.5			2.5	2.5	2.0	1.0
Lane Grp Cap (vph)		206			495	440			253	408	164	1627
v/s Ratio Prot		c0.06			0.13	0.13					0.01	c0.32
v/s Ratio Perm									c0.19	0.01	0.10	
v/c Ratio		0.51			0.47	0.47			0.68	0.04	0.24	0.68
Uniform Delay, d1		39.6			29.0	28.9			31.0	26.9	17.4	19.7
Progression Factor		1.00			1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2		1.6			0.5	0.6			6.4	0.0	0.3	0.9
Delay (s)		41.3			29.5	29.5			37.5	26.9	17.7	20.7
Level of Service		D			C	C			D	C	B	C
Approach Delay (s)		41.3			29.5				34.8			20.6
Approach LOS		D			C				C			C

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	96.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	172	33	29	9	955	52
Future Volume (vph)	172	33	29	9	955	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0
Lane Util. Factor				1.00	0.95	1.00
Frt				1.00	1.00	0.85
Flt Protected				0.95	1.00	1.00
Satd. Flow (prot)				1770	3539	1583
Flt Permitted				0.18	1.00	1.00
Satd. Flow (perm)				326	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	36	32	10	1038	57
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	42	1038	57
Turn Type			pm+pt	Perm	NA	Free
Protected Phases			5		2	
Permitted Phases			2	2		Free
Actuated Green, G (s)				35.3	35.3	96.6
Effective Green, g (s)				37.3	37.3	96.6
Actuated g/C Ratio				0.39	0.39	1.00
Clearance Time (s)				6.0	6.0	
Vehicle Extension (s)				1.0	1.0	
Lane Grp Cap (vph)				125	1366	1583
v/s Ratio Prot					c0.29	
v/s Ratio Perm				0.13		0.04
v/c Ratio				0.34	0.76	0.04
Uniform Delay, d1				20.9	25.8	0.0
Progression Factor				1.00	1.00	1.00
Incremental Delay, d2				0.6	2.2	0.0
Delay (s)				21.5	28.0	0.0
Level of Service				C	C	A
Approach Delay (s)					26.3	
Approach LOS					C	

Intersection Summary



Lane Group	NBL	SET	SER	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	106	234	355	172	59	39	1109	42	1038	57
v/c Ratio	0.50	0.46	0.59	0.67	0.12	0.18	0.72	0.33	0.75	0.04
Control Delay	56.7	33.9	18.0	47.3	0.5	17.7	24.1	33.0	30.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	33.9	18.0	47.3	0.5	17.7	24.1	33.0	30.2	0.0
Queue Length 50th (ft)	64	123	76	97	0	13	270	19	302	0
Queue Length 95th (ft)	#181	240	205	212	0	37	438	59	466	0
Internal Link Dist (ft)	585	329		410			390		683	
Turn Bay Length (ft)						190				
Base Capacity (vph)	232	883	889	452	812	214	2299	212	2312	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.27	0.40	0.38	0.07	0.18	0.48	0.20	0.45	0.04

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1701: NE 2nd Ct & Miami Gardens Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	2094	25	95	1039	223	9	9	75	191	8	90
Future Volume (veh/h)	124	2094	25	95	1039	223	9	9	75	191	8	90
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1827	1827	1900	1827	1827	1900	1827	1827	1827
Adj Flow Rate, veh/h	135	2276	27	103	1129	242	10	10	82	214	0	98
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	2	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	348	3181	38	209	2561	549	142	14	115	370	0	271
Arrive On Green	0.06	0.63	0.61	0.06	0.62	0.60	0.08	0.08	0.06	0.11	0.00	0.11
Sat Flow, veh/h	1740	5081	60	1740	4115	882	1740	172	1407	3480	0	1553
Grp Volume(v), veh/h	135	1488	815	103	912	459	10	0	92	214	0	98
Grp Sat Flow(s),veh/h/ln	1740	1663	1816	1740	1663	1671	1740	0	1579	1740	0	1553
Q Serve(g_s), s	3.3	37.9	38.1	2.5	17.8	18.2	0.7	0.0	7.2	7.3	0.0	7.0
Cycle Q Clear(g_c), s	3.3	37.9	38.1	2.5	17.8	18.2	0.7	0.0	7.2	7.3	0.0	7.0
Prop In Lane	1.00		0.03	1.00		0.53	1.00		0.89	1.00		1.00
Lane Grp Cap(c), veh/h	348	2081	1137	209	2070	1040	142	0	129	370	0	271
V/C Ratio(X)	0.39	0.72	0.72	0.49	0.44	0.44	0.07	0.00	0.71	0.58	0.00	0.36
Avail Cap(c_a), veh/h	353	2081	1137	210	2070	1040	142	0	129	980	0	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.66	0.66	0.66	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	15.8	15.9	21.3	12.3	12.7	53.0	0.0	57.4	53.2	0.0	45.5
Incr Delay (d2), s/veh	0.3	2.1	3.9	0.4	0.5	0.9	0.2	0.0	16.1	1.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	24.7	27.6	4.0	12.1	12.6	0.6	0.0	6.7	6.5	0.0	5.4
LnGrp Delay(d),s/veh	9.1	18.0	19.8	21.7	12.7	13.6	53.2	0.0	73.5	54.2	0.0	46.1
LnGrp LOS	A	B	B	C	B	B	D		E	D		D
Approach Vol, veh/h		2438			1474			102			312	
Approach Delay, s/veh		18.1			13.6			71.5			51.7	
Approach LOS		B			B			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	81.8		14.2	11.3	82.2		17.3
Change Period (Y+Rc), s	6.4	* 6.6		* 7.2	6.4	* 6.6		7.2
Max Green Setting (Gmax), s	5.6	* 53		* 7	5.0	* 54		32.0
Max Q Clear Time (g_c+I1), s	5.3	20.2		9.2	4.5	40.1		9.3
Green Ext Time (p_c), s	0.0	4.2		0.0	0.0	6.6		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Notes

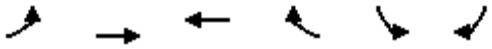
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	971	1389	451	212	508	753
Future Volume (veh/h)	971	1389	451	212	508	753
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1055	0	490	230	552	818
Adj No. of Lanes	3	1	2	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2168	675	730	1059	594	1210
Arrive On Green	0.43	0.00	0.17	0.95	0.33	0.33
Sat Flow, veh/h	5253	1583	3442	1863	1774	2787
Grp Volume(v), veh/h	1055	0	490	230	552	818
Grp Sat Flow(s),veh/h/ln	1695	1583	1721	1863	1774	1393
Q Serve(g_s), s	21.0	0.0	11.1	1.1	42.1	32.9
Cycle Q Clear(g_c), s	21.0	0.0	11.1	1.1	42.1	32.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2168	675	730	1059	594	1210
V/C Ratio(X)	0.49	0.00	0.67	0.22	0.93	0.68
Avail Cap(c_a), veh/h	2168	675	954	1059	749	1453
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	0.50	0.00	0.62	0.62	1.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	19.2	1.6	44.9	31.7
Incr Delay (d2), s/veh	0.4	0.0	0.3	0.3	14.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.6	0.0	8.1	1.1	30.7	33.1
LnGrp Delay(d),s/veh	29.5	0.0	19.5	1.8	59.1	32.3
LnGrp LOS	C		B	A	E	C
Approach Vol, veh/h	1055			720	1370	
Approach Delay, s/veh	29.5			13.9	43.1	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		86.7		53.3	19.9	66.8		
Change Period (Y+Rc), s		7.1		6.4	6.0	7.1		
Max Green Setting (Gmax), s		67.4		59.1	23.0	38.4		
Max Q Clear Time (g_c+I1), s		3.1		44.1	13.1	23.0		
Green Ext Time (p_c), s		0.5		2.8	0.8	3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
1703: Miami Gardens Dr & NB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1149	574	1050	832	894	674
Future Volume (veh/h)	1149	574	1050	832	894	674
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	1185	592	1082	0	922	0
Adj No. of Lanes	2	1	2	1	3	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	1244	1326	1249	532	955	280
Arrive On Green	0.61	1.00	0.36	0.00	0.19	0.00
Sat Flow, veh/h	3408	1845	3597	1568	4954	1568
Grp Volume(v), veh/h	1185	592	1082	0	922	0
Grp Sat Flow(s),veh/h/ln	1704	1845	1752	1568	1651	1568
Q Serve(g_s), s	45.3	0.0	40.2	0.0	25.8	0.0
Cycle Q Clear(g_c), s	45.3	0.0	40.2	0.0	25.8	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1244	1326	1249	532	955	280
V/C Ratio(X)	0.95	0.45	0.87	0.00	0.96	0.00
Avail Cap(c_a), veh/h	1266	1331	1249	532	955	280
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	26.2	0.0	41.9	0.0	56.0	0.0
Incr Delay (d2), s/veh	13.2	0.2	8.2	0.0	21.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	30.3	0.1	28.5	0.0	19.7	0.0
LnGrp Delay(d),s/veh	39.4	0.2	50.2	0.0	77.1	0.0
LnGrp LOS	D	A	D		E	
Approach Vol, veh/h		1777	1082		922	
Approach Delay, s/veh		26.4	50.2		77.1	
Approach LOS		C	D		E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	55.1	53.9		31.0		109.0		
Change Period (Y+Rc), s	6.4	6.4		6.0		* 6.4		
Max Green Setting (Gmax), s	49.6	46.6		25.0		* 1E2		
Max Q Clear Time (g_c+I1), s	47.3	42.2		27.8		2.0		
Green Ext Time (p_c), s	1.4	1.6		0.0		4.7		

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1801: NE 205th Terrace/NE 16th Avenue

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	2962	31	245	1507	185	10	0	38	293	6	18
Future Volume (veh/h)	39	2962	31	245	1507	185	10	0	38	293	6	18
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	41	3085	32	255	1570	193	10	0	40	305	6	19
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	225	3148	33	166	2878	353	145	94	177	369	70	221
Arrive On Green	0.03	0.61	0.61	0.06	0.63	0.63	0.01	0.00	0.05	0.14	0.18	0.18
Sat Flow, veh/h	1774	5190	54	1774	4590	563	1774	1863	1583	1774	394	1248
Grp Volume(v), veh/h	41	2012	1105	255	1159	604	10	0	40	305	0	25
Grp Sat Flow(s),veh/h/ln	1774	1695	1853	1774	1695	1763	1774	1863	1583	1774	0	1642
Q Serve(g_s), s	1.1	74.6	75.6	8.0	25.2	25.3	0.7	0.0	3.0	18.0	0.0	1.7
Cycle Q Clear(g_c), s	1.1	74.6	75.6	8.0	25.2	25.3	0.7	0.0	3.0	18.0	0.0	1.7
Prop In Lane	1.00		0.03	1.00		0.32	1.00		1.00	1.00		0.76
Lane Grp Cap(c), veh/h	225	2057	1124	166	2125	1106	145	94	177	369	0	291
V/C Ratio(X)	0.18	0.98	0.98	1.53	0.55	0.55	0.07	0.00	0.23	0.83	0.00	0.09
Avail Cap(c_a), veh/h	253	2057	1124	166	2125	1106	193	358	402	369	0	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	24.7	24.9	45.3	13.7	13.8	57.5	0.0	52.6	50.2	0.0	44.7
Incr Delay (d2), s/veh	0.4	15.3	23.1	267.7	1.0	1.9	0.1	0.0	0.5	13.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	49.3	56.7	33.0	17.7	18.7	0.6	0.0	2.4	17.1	0.0	1.4
LnGrp Delay(d),s/veh	11.5	40.0	48.0	313.1	14.8	15.7	57.6	0.0	53.1	63.5	0.0	44.8
LnGrp LOS	B	D	D	F	B	B	E		D	E		D
Approach Vol, veh/h		3158			2018			50			330	
Approach Delay, s/veh		42.5			52.7			54.0			62.1	
Approach LOS		D			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	87.8	21.0	12.8	11.0	85.2	4.5	29.3
Change Period (Y+Rc), s	4.5	* 6.3	3.0	* 6.3	3.0	* 6.3	3.0	* 6.3
Max Green Setting (Gmax), s	5.9	* 61	18.0	* 25	8.0	* 60	5.0	* 38
Max Q Clear Time (g_c+I1), s	3.1	27.3	20.0	5.0	10.0	77.6	2.7	3.7
Green Ext Time (p_c), s	0.0	12.4	0.0	0.1	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1802: Ives Dairy Road West Crossover

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑↑↑									↑↑↑	
Traffic Volume (vph)	0	2109	0	0	0	0	0	0	0	0	1592	0
Future Volume (vph)	0	2109	0	0	0	0	0	0	0	0	1592	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.81									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		7619									5136	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		7619									5136	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	2197	0	0	0	0	0	0	0	0	1658	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2197	0	0	0	0	0	0	0	0	1658	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		62.5									71.5	
Effective Green, g (s)		62.5									71.5	
Actuated g/C Ratio		0.42									0.48	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		3174									2448	
v/s Ratio Prot		c0.29									c0.32	
v/s Ratio Perm												
v/c Ratio		0.69									0.68	
Uniform Delay, d1		35.9									30.3	
Progression Factor		1.42									0.20	
Incremental Delay, d2		0.1									1.0	
Delay (s)		51.1									7.1	
Level of Service		D									A	
Approach Delay (s)		51.1			0.0			0.0			7.1	
Approach LOS		D			A			A			A	

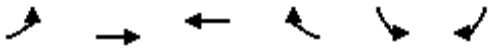
Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	NWT
Lane Group Flow (vph)	2197	1658
v/c Ratio	0.69	0.68
Control Delay	51.4	7.2
Queue Delay	0.0	5.0
Total Delay	51.4	12.2
Queue Length 50th (ft)	560	49
Queue Length 95th (ft)	m479	151
Internal Link Dist (ft)	312	224
Turn Bay Length (ft)		
Base Capacity (vph)	3174	2448
Starvation Cap Reductn	0	717
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.69	0.96

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1803: Ives Dairy Road & I-95 SB Off-Ramp



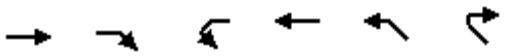
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑↑			↰↰↰	
Traffic Volume (vph)	0	2109	0	0	1435	0
Future Volume (vph)	0	2109	0	0	1435	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.81			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		7819			5172	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		7819			5172	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	2197	0	0	1495	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2197	0	0	1495	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		NA			Prot	
Protected Phases		2 3			4	
Permitted Phases						
Actuated Green, G (s)		69.5			71.5	
Effective Green, g (s)		69.5			71.5	
Actuated g/C Ratio		0.46			0.48	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		3622			2465	
v/s Ratio Prot		c0.28			c0.29	
v/s Ratio Perm						
v/c Ratio		0.61			0.61	
Uniform Delay, d1		30.0			28.9	
Progression Factor		0.00			1.00	
Incremental Delay, d2		0.2			1.1	
Delay (s)		0.2			30.0	
Level of Service		A			C	
Approach Delay (s)		0.2	0.0		30.0	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	SBL
Lane Group Flow (vph)	2197	1495
v/c Ratio	0.61	0.61
Control Delay	0.5	30.2
Queue Delay	0.1	0.0
Total Delay	0.6	30.2
Queue Length 50th (ft)	0	375
Queue Length 95th (ft)	0	423
Internal Link Dist (ft)	148	115
Turn Bay Length (ft)		
Base Capacity (vph)	3622	2465
Starvation Cap Reductn	255	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.65	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1804: I-95 NB Off-Ramp & Ives Dairy Road



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2237	340	0
Future Volume (vph)	0	0	0	2237	340	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0	
Lane Util. Factor				0.81	0.94	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				7544	4990	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				7544	4990	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	2330	354	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2330	354	0
Turn Type				NA	Prot	
Protected Phases				2 3	4	
Permitted Phases						
Actuated Green, G (s)				54.5	86.0	
Effective Green, g (s)				54.5	86.0	
Actuated g/C Ratio				0.36	0.57	
Clearance Time (s)					5.0	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				2740	2860	
v/s Ratio Prot				c0.31	c0.07	
v/s Ratio Perm						
v/c Ratio				0.85	0.12	
Uniform Delay, d1				44.0	14.7	
Progression Factor				0.04	1.00	
Incremental Delay, d2				0.8	0.0	
Delay (s)				2.7	14.7	
Level of Service				A	B	
Approach Delay (s)	0.0			2.7	14.7	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	NWL
Lane Group Flow (vph)	2330	354
v/c Ratio	0.86	0.12
Control Delay	3.0	14.8
Queue Delay	1.1	0.0
Total Delay	4.1	14.8
Queue Length 50th (ft)	13	54
Queue Length 95th (ft)	m15	71
Internal Link Dist (ft)	153	140
Turn Bay Length (ft)		
Base Capacity (vph)	2715	2860
Starvation Cap Reductn	176	0
Spillback Cap Reductn	93	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.92	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1805: Ives Dairy Road East Crossover

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑↑									↑↑↑↑↑	
Traffic Volume (vph)	0	2800	0	0	0	0	0	0	0	0	2237	0
Future Volume (vph)	0	2800	0	0	0	0	0	0	0	0	2237	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Total Lost time (s)		5.0									5.0	
Lane Util. Factor		0.91									0.81	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		5219									7743	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		5219									7743	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	2917	0	0	0	0	0	0	0	0	2330	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2917	0	0	0	0	0	0	0	0	2330	0
Turn Type		NA									NA	
Protected Phases		4									2	
Permitted Phases												
Actuated Green, G (s)		86.0									47.0	
Effective Green, g (s)		86.0									47.0	
Actuated g/C Ratio		0.57									0.31	
Clearance Time (s)		5.0									5.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2992									2426	
v/s Ratio Prot		c0.56									c0.30	
v/s Ratio Perm												
v/c Ratio		0.97									0.96	
Uniform Delay, d1		31.0									50.6	
Progression Factor		0.68									1.18	
Incremental Delay, d2		9.8									1.5	
Delay (s)		30.7									61.1	
Level of Service		C									E	
Approach Delay (s)		30.7			0.0			0.0			61.1	
Approach LOS		C			A			A			E	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
1805: Ives Dairy Road East Crossover

Lane Group	EBT	SWT
Lane Group Flow (vph)	2917	2330
v/c Ratio	0.97	0.96
Control Delay	31.5	60.8
Queue Delay	0.0	0.0
Total Delay	31.5	60.8
Queue Length 50th (ft)	568	521
Queue Length 95th (ft)	#599	m435
Internal Link Dist (ft)	208	130
Turn Bay Length (ft)		
Base Capacity (vph)	2992	2426
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.97	0.96

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1806: Highland Lakes Blvd & Ives Dairy Rd

2045 Build Scenario
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	438	2550	269	12	2583	10	926	22	12	16	38	515
Future Volume (veh/h)	438	2550	269	12	2583	10	926	22	12	16	38	515
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	447	2602	274	12	2636	10	972	0	0	16	39	526
Adj No. of Lanes	2	3	0	1	3	0	3	1	0	1	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	497	2916	298	82	2566	10	974	341	0	95	100	314
Arrive On Green	0.14	0.61	0.61	0.01	0.48	0.48	0.18	0.00	0.00	0.05	0.05	0.05
Sat Flow, veh/h	3510	4784	488	1810	5334	20	5429	1900	0	1810	1900	1615
Grp Volume(v), veh/h	447	1858	1018	12	1708	938	972	0	0	16	39	526
Grp Sat Flow(s),veh/h/ln	1755	1729	1814	1810	1729	1896	1810	1900	0	1810	1900	1615
Q Serve(g_s), s	18.8	68.0	74.9	0.5	72.2	72.2	26.8	0.0	0.0	1.3	3.0	7.9
Cycle Q Clear(g_c), s	18.8	68.0	74.9	0.5	72.2	72.2	26.8	0.0	0.0	1.3	3.0	7.9
Prop In Lane	1.00		0.27	1.00		0.01	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	497	2108	1106	82	1663	912	974	341	0	95	100	314
V/C Ratio(X)	0.90	0.88	0.92	0.15	1.03	1.03	1.00	0.00	0.00	0.17	0.39	1.68
Avail Cap(c_a), veh/h	608	2108	1106	118	1663	912	974	341	0	95	100	314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.3	24.7	26.1	31.2	38.9	38.9	61.5	0.0	0.0	67.9	68.7	60.4
Incr Delay (d2), s/veh	12.9	5.7	13.7	0.3	29.2	37.2	28.4	0.0	0.0	0.6	1.8	318.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.2	43.5	52.1	0.5	74.1	84.9	22.5	0.0	0.0	1.2	2.9	73.2
LnGrp Delay(d),s/veh	76.2	30.4	39.7	31.5	68.1	76.1	90.0	0.0	0.0	68.5	70.5	378.4
LnGrp LOS	E	C	D	C	F	F	F			E	E	F
Approach Vol, veh/h		3323			2658			972			581	
Approach Delay, s/veh		39.4			70.8			90.0			349.2	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.2	78.8		33.0	5.0	98.0		14.0
Change Period (Y+Rc), s	3.0	6.6		6.1	3.0	6.6		6.1
Max Green Setting (Gmax), s	26.0	67.4		26.9	5.0	88.4		7.9
Max Q Clear Time (g_c+I1), s	20.8	74.2		28.8	2.5	76.9		9.9
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	6.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	80.9
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

Part 2
PM Peak Period

HCM 2010 Signalized Intersection Summary
1101: NW 7th Ave/SR 7 & NW 103rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	398	1073	100	76	1233	278	375	2275	182	227	695	232
Future Volume (veh/h)	398	1073	100	76	1233	278	375	2275	182	227	695	232
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	398	1073	100	76	1233	278	375	2275	182	227	695	232
Adj No. of Lanes	1	3	0	1	3	1	1	3	0	1	3	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	182	1064	99	149	1475	459	315	1823	144	160	1436	473
Arrive On Green	0.05	0.30	0.30	0.04	0.29	0.29	0.07	0.51	0.51	0.07	0.51	0.51
Sat Flow, veh/h	1757	3558	331	1757	5036	1568	1757	4759	376	1757	3750	1234
Grp Volume(v), veh/h	398	634	539	76	1233	278	375	1597	860	227	621	306
Grp Sat Flow(s),veh/h/ln	1757	1051	1786	1757	1679	1568	1757	1679	1778	1757	1679	1627
Q Serve(g_s), s	5.0	29.9	29.9	3.0	22.9	15.2	5.0	38.3	38.3	5.0	12.0	12.3
Cycle Q Clear(g_c), s	5.0	29.9	29.9	3.0	22.9	15.2	5.0	38.3	38.3	5.0	12.0	12.3
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.21	1.00		0.76
Lane Grp Cap(c), veh/h	182	629	534	149	1475	459	315	1286	681	160	1286	623
V/C Ratio(X)	2.19	1.01	1.01	0.51	0.84	0.61	1.19	1.24	1.26	1.42	0.48	0.49
Avail Cap(c_a), veh/h	182	629	534	160	1506	469	315	1286	681	160	1286	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	35.0	35.1	27.3	33.1	30.4	32.0	24.5	24.5	27.4	18.1	18.1
Incr Delay (d2), s/veh	2163.2	79.8	87.2	0.8	3.2	1.4	377.8	442.0	485.5	792.6	1.3	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	200.9	28.1	49.7	2.6	15.8	10.5	70.7	173.4	198.5	68.2	9.7	9.9
LnGrp Delay(d),s/veh	2197.4	114.9	122.2	28.0	36.3	31.8	409.9	466.5	510.1	820.0	19.4	20.9
LnGrp LOS	F	F	F	C	D	C	F	F	F	F	B	C
Approach Vol, veh/h		1571			1587			2832			1154	
Approach Delay, s/veh		645.0			35.1			472.3			177.3	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	44.6	9.4	36.0	10.0	44.6	10.0	35.4
Change Period (Y+Rc), s	5.0	6.3	5.0	* 6.1	5.0	6.3	5.0	* 6.1
Max Green Setting (Gmax), s	5.0	37.7	5.0	* 30	5.0	37.7	5.0	* 30
Max Q Clear Time (g_c+I1), s	7.0	14.3	5.0	31.9	7.0	40.3	7.0	24.9
Green Ext Time (p_c), s	0.0	2.5	0.0	0.0	0.0	0.0	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	365.5
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1102: SB On-Ramp/SB Off-Ramp & NW 103rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	632	850	761	656	0	0	0	0	630	10	931
Future Volume (veh/h)	0	632	850	761	656	0	0	0	0	630	10	931
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	632	0	761	656	0				637	0	931
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1309	655	1175	2124	0				1064	0	950
Arrive On Green	0.00	0.69	0.00	0.26	1.00	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	3446	1583	3442	3632	0				3548	0	3167
Grp Volume(v), veh/h	0	632	0	761	656	0				637	0	931
Grp Sat Flow(s),veh/h/ln	0	1583	1583	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	9.3	0.0	12.6	0.0	0.0				15.3	0.0	29.2
Cycle Q Clear(g_c), s	0.0	9.3	0.0	12.6	0.0	0.0				15.3	0.0	29.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1309	655	1175	2124	0				1064	0	950
V/C Ratio(X)	0.00	0.48	0.00	0.65	0.31	0.00				0.60	0.00	0.98
Avail Cap(c_a), veh/h	0	1309	655	1359	2124	0				1064	0	950
HCM Platoon Ratio	1.00	1.67	1.67	1.67	1.67	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.78	0.78	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.5	0.0	10.6	0.0	0.0				29.9	0.0	34.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.4	0.3	0.0				0.8	0.0	41.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.9	0.0	9.4	0.2	0.0				12.2	0.0	25.2
LnGrp Delay(d),s/veh	0.0	10.6	0.0	11.0	0.3	0.0				30.7	0.0	76.3
LnGrp LOS		B		B	A					C		E
Approach Vol, veh/h		632			1417						1568	
Approach Delay, s/veh		10.6			6.1						57.8	
Approach LOS		B			A						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		65.0			18.7	46.3		35.0
Change Period (Y+Rc), s		5.0			3.0	5.0		5.0
Max Green Setting (Gmax), s		60.0			21.0	36.0		30.0
Max Q Clear Time (g_c+I1), s		2.0			14.6	11.3		31.2
Green Ext Time (p_c), s		1.8			1.1	1.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1103: NW 6th Ave/NB Off-Ramp/NB On-Ramp & NW 103rd St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	386	875	0	0	796	363	622	64	447	0	0	0
Future Volume (veh/h)	386	875	0	0	796	363	622	64	447	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1881	1881	0	0	1881	1881	1881	1881	1881			
Adj Flow Rate, veh/h	386	875	0	0	796	363	624	0	488			
Adj No. of Lanes	2	2	0	0	2	1	2	0	3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	783	2428	0	0	1732	920	769	0	1030			
Arrive On Green	0.07	0.68	0.00	0.00	0.58	0.58	0.21	0.00	0.21			
Sat Flow, veh/h	3476	3668	0	0	3386	1599	3583	0	4797			
Grp Volume(v), veh/h	386	875	0	0	796	363	624	0	488			
Grp Sat Flow(s),veh/h/ln	1738	1787	0	0	1505	1599	1792	0	1599			
Q Serve(g_s), s	4.2	10.4	0.0	0.0	15.3	12.5	16.6	0.0	8.9			
Cycle Q Clear(g_c), s	4.2	10.4	0.0	0.0	15.3	12.5	16.6	0.0	8.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	783	2428	0	0	1732	920	769	0	1030			
V/C Ratio(X)	0.49	0.36	0.00	0.00	0.46	0.39	0.81	0.00	0.47			
Avail Cap(c_a), veh/h	1361	2428	0	0	1732	920	1061	0	1420			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.83	0.83	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	8.9	6.8	0.0	0.0	12.2	11.7	37.3	0.0	34.3			
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.9	1.3	3.1	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	3.6	8.6	0.0	0.0	10.7	9.7	13.3	0.0	7.1			
LnGrp Delay(d),s/veh	9.0	7.2	0.0	0.0	13.1	12.9	40.4	0.0	34.6			
LnGrp LOS	A	A			B	B	D		C			
Approach Vol, veh/h		1261			1159			1112				
Approach Delay, s/veh		7.7			13.1			37.9				
Approach LOS		A			B			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	10.4	62.8		26.9		73.1		
Change Period (Y+Rc), s	3.5	* 5.2		* 5.4		* 5.2		
Max Green Setting (Gmax), s	23.5	* 33		* 30		* 60		
Max Q Clear Time (g_c+I1), s	6.2	17.3		18.6		12.4		
Green Ext Time (p_c), s	0.7	2.2		2.9		2.6		

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1104: NW 5th Ave & NW 103rd St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	912	334	161	972	28	145	156	122	17	80	41
Future Volume (veh/h)	77	912	334	161	972	28	145	156	122	17	80	41
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1900	1900	1881	1900	1900	1881	1900
Adj Flow Rate, veh/h	77	912	334	161	972	28	145	156	122	17	80	41
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	387	1590	580	270	1922	55	195	179	133	73	309	145
Arrive On Green	0.06	0.82	0.62	0.72	0.72	0.72	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1792	2567	936	449	3548	102	513	622	460	117	1071	502
Grp Volume(v), veh/h	77	633	613	161	490	510	423	0	0	138	0	0
Grp Sat Flow(s),veh/h/ln	1792	1787	1716	449	1787	1863	1595	0	0	1690	0	0
Q Serve(g_s), s	1.8	12.1	17.8	28.5	12.3	12.3	20.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	12.1	17.8	38.4	12.3	12.3	26.1	0.0	0.0	6.1	0.0	0.0
Prop In Lane	1.00		0.55	1.00		0.05	0.34		0.29	0.12		0.30
Lane Grp Cap(c), veh/h	387	1107	1063	270	968	1009	507	0	0	527	0	0
V/C Ratio(X)	0.20	0.57	0.58	0.60	0.51	0.51	0.83	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	399	1107	1063	270	968	1009	595	0	0	621	0	0
HCM Platoon Ratio	1.33	1.33	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.3	4.5	8.1	15.7	8.3	8.3	34.8	0.0	0.0	28.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	2.2	2.3	9.7	1.9	1.8	8.9	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.6	10.6	14.0	7.6	10.6	10.9	18.6	0.0	0.0	5.4	0.0	0.0
LnGrp Delay(d),s/veh	9.4	6.6	10.4	25.4	10.2	10.1	43.7	0.0	0.0	28.2	0.0	0.0
LnGrp LOS	A	A	B	C	B	B	D			C		
Approach Vol, veh/h		1323			1161			423			138	
Approach Delay, s/veh		8.6			12.2			43.7			28.2	
Approach LOS		A			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	7.9	59.8		34.2		67.8		34.2
Change Period (Y+Rc), s	3.5	* 4.6		* 4.8		* 4.6		* 4.8
Max Green Setting (Gmax), s	5.1	* 49		* 35		* 57		* 35
Max Q Clear Time (g_c+I1), s	3.8	40.4		28.1		19.8		8.1
Green Ext Time (p_c), s	0.0	2.7		1.3		3.4		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1201: NW 7th Ave/SR 7 & NW 119th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	807	113	88	1299	134	474	2136	113	58	861	280
Future Volume (veh/h)	357	807	113	88	1299	134	474	2136	113	58	861	280
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	357	807	113	88	1299	134	474	2136	113	58	861	280
Adj No. of Lanes	1	3	0	1	3	1	1	3	0	1	3	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	225	1317	183	246	1310	408	300	1758	93	144	1118	362
Arrive On Green	0.09	0.29	0.29	0.05	0.25	0.25	0.13	0.47	0.47	0.05	0.39	0.39
Sat Flow, veh/h	1792	4559	634	1792	5136	1599	1792	4996	263	1792	3842	1243
Grp Volume(v), veh/h	357	605	315	88	1299	134	474	1461	788	58	767	374
Grp Sat Flow(s),veh/h/ln	1792	1712	1769	1792	1712	1599	1792	1712	1835	1792	1712	1662
Q Serve(g_s), s	8.5	15.3	15.4	3.6	25.2	6.8	10.1	35.2	35.2	2.2	19.6	19.7
Cycle Q Clear(g_c), s	8.5	15.3	15.4	3.6	25.2	6.8	10.1	35.2	35.2	2.2	19.6	19.7
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.14	1.00		0.75
Lane Grp Cap(c), veh/h	225	989	511	246	1310	408	300	1205	646	144	996	484
V/C Ratio(X)	1.58	0.61	0.62	0.36	0.99	0.33	1.58	1.21	1.22	0.40	0.77	0.77
Avail Cap(c_a), veh/h	225	989	511	289	1310	408	300	1205	646	163	996	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	30.7	30.8	26.2	37.1	30.3	27.4	26.6	26.6	27.0	27.7	27.8
Incr Delay (d2), s/veh	1073.1	0.8	1.7	0.3	42.4	0.2	1064.5	390.0	412.3	0.7	5.9	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	129.1	11.8	12.3	3.2	23.8	5.4	169.7	147.2	165.0	2.0	15.3	16.0
LnGrp Delay(d),s/veh	1103.0	31.5	32.4	26.5	79.6	30.5	1091.9	416.5	438.9	27.7	33.7	40.1
LnGrp LOS	F	C	C	C	E	C	F	F	F	C	C	D
Approach Vol, veh/h		1277			1521			2723			1199	
Approach Delay, s/veh		331.3			72.2			540.6			35.4	
Approach LOS		F			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	36.0	15.0	32.0	10.9	42.1	11.6	35.4
Change Period (Y+Rc), s	6.9	6.9	6.5	6.5	6.9	6.9	6.5	6.5
Max Green Setting (Gmax), s	10.1	29.1	8.5	25.5	5.1	34.1	7.5	26.5
Max Q Clear Time (g_c+I1), s	12.1	21.7	10.5	27.2	4.2	37.2	5.6	17.4
Green Ext Time (p_c), s	0.0	2.2	0.0	0.0	0.0	0.0	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	304.7
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

HCM Unsignalized Intersection Capacity Analysis
1202: SB On-Ramp & NW 119th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	966	12	310	1531	0	0
Future Volume (Veh/h)	966	12	310	1531	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	966	12	310	1531	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	382			293		
pX, platoon unblocked			0.83		0.67	0.83
vC, conflicting volume			966		2352	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			549		875	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			63		100	100
cM capacity (veh/h)			844		121	900

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3
Volume Total	483	483	12	310	766	766
Volume Left	0	0	0	310	0	0
Volume Right	0	0	12	0	0	0
cSH	1700	1700	1700	844	1700	1700
Volume to Capacity	0.28	0.28	0.01	0.37	0.45	0.45
Queue Length 95th (ft)	0	0	0	43	0	0
Control Delay (s)	0.0	0.0	0.0	11.7	0.0	0.0
Lane LOS				B		
Approach Delay (s)	0.0			2.0		
Approach LOS						

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	98.8%	ICU Level of Service		F
Analysis Period (min)	60			

HCM 2010 Signalized Intersection Summary
1203: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 119th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	974	0	0	1498	65	342	12	1818	0	0	0
Future Volume (veh/h)	4	974	0	0	1498	65	342	12	1818	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	1863	1863			
Adj Flow Rate, veh/h	4	974	0	0	1498	65	351	0	0			
Adj No. of Lanes	1	2	0	0	2	0	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	319	2745	0	0	2559	111	445	0	199			
Arrive On Green	0.01	1.00	0.00	0.00	0.98	0.98	0.13	0.00	0.00			
Sat Flow, veh/h	1774	3632	0	0	3550	150	3548	0	1583			
Grp Volume(v), veh/h	4	974	0	0	765	798	351	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1836	1774	0	1583			
Q Serve(g_s), s	0.1	0.0	0.0	0.0	1.6	1.6	9.6	0.0	0.0			
Cycle Q Clear(g_c), s	0.1	0.0	0.0	0.0	1.6	1.6	9.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.08	1.00		1.00			
Lane Grp Cap(c), veh/h	319	2745	0	0	1310	1360	445	0	199			
V/C Ratio(X)	0.01	0.35	0.00	0.00	0.58	0.59	0.79	0.00	0.00			
Avail Cap(c_a), veh/h	487	2745	0	0	1310	1360	1419	0	633			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.82	0.82	1.00	0.00	0.00			
Uniform Delay (d), s/veh	2.8	0.0	0.0	0.0	0.2	0.2	42.4	0.0	0.0			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	1.6	1.5	2.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	0.0	0.2	0.0	0.0	1.6	1.7	8.4	0.0	0.0			
LnGrp Delay(d),s/veh	2.8	0.4	0.0	0.0	1.8	1.8	44.9	0.0	0.0			
LnGrp LOS	A	A			A	A	D					
Approach Vol, veh/h		978			1563			351				
Approach Delay, s/veh		0.4			1.8			44.9				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	3.5	78.9		17.5		82.5		
Change Period (Y+Rc), s	3.0	* 4.9		5.0		* 4.9		
Max Green Setting (Gmax), s	10.0	* 37		40.0		* 50		
Max Q Clear Time (g_c+I1), s	2.1	3.6		11.6		2.0		
Green Ext Time (p_c), s	0.0	4.6		0.9		3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1204: NW 5th Ave & NW 119th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	2362	195	37	1425	24	119	75	62	2	5	19
Future Volume (veh/h)	234	2362	195	37	1425	24	119	75	62	2	5	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	234	2362	195	37	1425	24	119	75	62	2	5	19
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	358	2591	211	169	2784	47	224	117	96	132	42	160
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	366	3315	270	123	3562	60	1381	944	781	1247	341	1294
Grp Volume(v), veh/h	234	1246	1311	37	707	742	119	0	137	2	0	24
Grp Sat Flow(s),veh/h/ln	366	1770	1815	123	1770	1852	1381	0	1725	1247	0	1634
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	8.4	0.0	7.6	0.2	0.0	1.3
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0	7.6	7.7	0.0	1.3
Prop In Lane	1.00		0.15	1.00		0.03	1.00		0.45	1.00		0.79
Lane Grp Cap(c), veh/h	358	1383	1419	169	1383	1448	224	0	213	132	0	202
V/C Ratio(X)	0.65	0.90	0.92	0.22	0.51	0.51	0.53	0.00	0.64	0.02	0.00	0.12
Avail Cap(c_a), veh/h	358	1383	1419	169	1383	1448	372	0	397	265	0	376
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.36	0.36	0.36	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	43.3	0.0	41.7	45.4	0.0	39.0
Incr Delay (d2), s/veh	3.4	4.1	5.4	3.0	1.4	1.3	1.4	0.0	2.4	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	2.8	3.5	0.3	0.9	0.9	5.9	0.0	6.8	0.1	0.0	1.1
LnGrp Delay(d),s/veh	3.4	4.1	5.4	3.0	1.4	1.3	44.8	0.0	44.2	45.4	0.0	39.2
LnGrp LOS	A	A	A	A	A	A	D		D	D		D
Approach Vol, veh/h		2791			1486			256			26	
Approach Delay, s/veh		4.7			1.4			44.4			39.7	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		82.7		17.3		82.7		17.3
Change Period (Y+Rc), s		4.5		5.0		4.5		5.0
Max Green Setting (Gmax), s		67.5		23.0		67.5		23.0
Max Q Clear Time (g_c+I1), s		2.0		11.7		2.0		9.7
Green Ext Time (p_c), s		6.4		0.7		24.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

HCM 2010 Signalized Intersection Summary
1301: NW 7th Ave/SR 7 & NW 125th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	120	5	444	155	521	13	2169	265	299	743	9
Future Volume (veh/h)	43	120	5	444	155	521	13	2169	265	299	743	9
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1900	1881	1881	1881	1881	1881	1900	1881	1881	1900
Adj Flow Rate, veh/h	43	120	5	300	357	521	13	2169	265	299	743	9
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	124	243	10	387	406	531	317	1593	191	280	2734	33
Arrive On Green	0.07	0.07	0.07	0.22	0.22	0.22	0.46	0.46	0.46	0.15	0.70	0.70
Sat Flow, veh/h	1792	3498	145	1792	1881	1599	715	4648	558	1792	5230	63
Grp Volume(v), veh/h	43	61	64	300	357	521	13	1588	846	299	486	266
Grp Sat Flow(s),veh/h/ln	1792	1787	1856	1792	1881	1599	715	1712	1783	1792	1712	1870
Q Serve(g_s), s	2.3	3.3	3.3	15.8	18.4	21.6	1.0	34.3	34.3	11.6	5.3	5.3
Cycle Q Clear(g_c), s	2.3	3.3	3.3	15.8	18.4	21.6	1.0	34.3	34.3	11.6	5.3	5.3
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.31	1.00		0.03
Lane Grp Cap(c), veh/h	124	124	129	387	406	531	317	1173	611	280	1789	977
V/C Ratio(X)	0.35	0.49	0.50	0.78	0.88	0.98	0.04	1.35	1.39	1.07	0.27	0.27
Avail Cap(c_a), veh/h	136	136	141	387	406	531	317	1173	611	280	1789	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	44.8	44.9	36.9	37.9	33.1	18.2	27.2	27.2	27.4	8.1	8.1
Incr Delay (d2), s/veh	1.2	2.3	2.2	8.4	20.1	55.8	0.2	641.7	704.5	188.8	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	3.1	3.2	13.1	17.0	29.6	0.4	217.1	245.3	40.2	4.6	5.1
LnGrp Delay(d),s/veh	45.6	47.1	47.1	45.3	58.0	88.9	18.4	668.9	731.7	216.2	8.5	8.8
LnGrp LOS	D	D	D	D	E	F	B	F	F	F	A	A
Approach Vol, veh/h		168			1178			2447			1051	
Approach Delay, s/veh		46.7			68.4			687.2			67.7	
Approach LOS		D			E			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		58.7		28.0	18.0	40.7		13.3
Change Period (Y+Rc), s		6.4		6.4	6.4	6.4		6.4
Max Green Setting (Gmax), s		51.6		21.6	11.6	33.6		7.6
Max Q Clear Time (g_c+I1), s		7.3		23.6	13.6	36.3		5.3
Green Ext Time (p_c), s		1.9		0.0	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	380.1
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
1302: NB On-Ramp/SB Off-Ramp & NW 125th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	482	202	649	614	0	0	0	0	923	6	506
Future Volume (veh/h)	0	482	202	649	614	0	0	0	0	923	6	506
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	482	202	649	614	0				927	0	506
Adj No. of Lanes	0	2	0	2	2	0				2	0	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	837	349	937	1937	0				1273	0	568
Arrive On Green	0.00	0.51	0.51	0.18	0.73	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	2659	907	3442	3632	0				3548	0	1583
Grp Volume(v), veh/h	0	305	379	649	614	0				927	0	506
Grp Sat Flow(s),veh/h/ln	0	1378	1703	1721	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	15.3	15.5	11.1	6.1	0.0				22.7	0.0	30.1
Cycle Q Clear(g_c), s	0.0	15.3	15.5	11.1	6.1	0.0				22.7	0.0	30.1
Prop In Lane	0.00		0.53	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	530	655	937	1937	0				1273	0	568
V/C Ratio(X)	0.00	0.57	0.58	0.69	0.32	0.00				0.73	0.00	0.89
Avail Cap(c_a), veh/h	0	530	655	963	1937	0				1561	0	697
HCM Platoon Ratio	1.00	1.33	1.33	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.48	0.48	0.56	0.56	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.8	18.8	15.1	7.0	0.0				27.8	0.0	30.2
Incr Delay (d2), s/veh	0.0	2.2	1.8	1.0	0.2	0.0				1.2	0.0	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	8.9	10.6	8.1	5.2	0.0				16.8	0.0	21.5
LnGrp Delay(d),s/veh	0.0	21.0	20.6	16.1	7.2	0.0				29.0	0.0	43.3
LnGrp LOS		C	C	B	A					C		D
Approach Vol, veh/h		684			1263						1433	
Approach Delay, s/veh		20.8			11.8						34.1	
Approach LOS		C			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		59.1			16.3	42.9		40.9
Change Period (Y+Rc), s		* 4.4			3.0	* 4.4		5.0
Max Green Setting (Gmax), s		* 47			14.0	* 30		44.0
Max Q Clear Time (g_c+I1), s		8.1			13.1	17.5		32.1
Green Ext Time (p_c), s		1.7			0.2	1.4		3.8

Intersection Summary	
HCM 2010 Ctrl Delay	23.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2045 Build Scenario

1303: NW 6th Ave/NB Off-Ramp/NW 6th Ave/NB On-Ramp & NW 125th St
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	242	1163	0	0	1238	253	25	57	34	0	0	0
Future Volume (veh/h)	242	1163	0	0	1238	253	25	57	34	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	242	1163	0	0	1238	253	25	57	34			
Adj No. of Lanes	1	2	0	0	2	1	0	2	2			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	384	2848	0	0	1954	830	69	171	187			
Arrive On Green	0.08	1.00	0.00	0.00	0.91	0.91	0.07	0.07	0.07			
Sat Flow, veh/h	1774	3632	0	0	3297	1219	1033	2548	2787			
Grp Volume(v), veh/h	242	1163	0	0	1238	253	44	38	34			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1434	1219	1811	1770	1393			
Q Serve(g_s), s	3.9	0.0	0.0	0.0	9.5	2.7	2.3	2.1	1.2			
Cycle Q Clear(g_c), s	3.9	0.0	0.0	0.0	9.5	2.7	2.3	2.1	1.2			
Prop In Lane	1.00		0.00	0.00		1.00	0.57		1.00			
Lane Grp Cap(c), veh/h	384	2848	0	0	1954	830	122	119	187			
V/C Ratio(X)	0.63	0.41	0.00	0.00	0.63	0.30	0.36	0.32	0.18			
Avail Cap(c_a), veh/h	413	2848	0	0	1954	830	337	329	518			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.57	0.57	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	5.3	0.0	0.0	0.0	1.9	1.6	44.6	44.5	44.0			
Incr Delay (d2), s/veh	1.1	0.2	0.0	0.0	1.6	0.9	1.3	1.1	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(95%),veh/ln	4.1	0.2	0.0	0.0	7.0	1.9	2.2	1.9	0.8			
LnGrp Delay(d),s/veh	6.3	0.2	0.0	0.0	3.5	2.6	45.9	45.6	44.4			
LnGrp LOS	A	A			A	A	D	D	D			
Approach Vol, veh/h		1405			1491			116				
Approach Delay, s/veh		1.3			3.4			45.4				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.4	74.5		13.1		86.9		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	7.6	54.6		18.6		68.6		
Max Q Clear Time (g_c+I1), s	5.9	11.5		4.3		2.0		
Green Ext Time (p_c), s	0.1	4.2		0.3		3.8		

Intersection Summary	
HCM 2010 Ctrl Delay	4.0
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1401: NW 7th Ave/SR 7 & NW 135th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	1420	101	0	0	0	0	1727	864	277	961	0
Future Volume (veh/h)	196	1420	101	0	0	0	0	1727	864	277	961	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863				0	1863	1900	1863	1863	0
Adj Flow Rate, veh/h	196	1420	101				0	1727	864	277	961	0
Adj No. of Lanes	1	3	1				0	3	0	1	3	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	602	1726	537				0	1240	566	260	2709	0
Arrive On Green	0.34	0.34	0.34				0.00	0.48	0.48	0.14	0.71	0.00
Sat Flow, veh/h	1774	5085	1583				0	3586	1559	1774	5253	0
Grp Volume(v), veh/h	196	1420	101				0	1711	880	277	961	0
Grp Sat Flow(s),veh/h/ln	1774	1695	1583				0	1695	1588	1774	1695	0
Q Serve(g_s), s	8.2	25.6	4.5				0.0	36.3	36.3	10.6	7.4	0.0
Cycle Q Clear(g_c), s	8.2	25.6	4.5				0.0	36.3	36.3	10.6	7.4	0.0
Prop In Lane	1.00		1.00				0.00		0.98	1.00		0.00
Lane Grp Cap(c), veh/h	602	1726	537				0	1230	576	260	2709	0
V/C Ratio(X)	0.33	0.82	0.19				0.00	1.39	1.53	1.07	0.35	0.00
Avail Cap(c_a), veh/h	667	1912	595				0	1230	576	260	2709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.33	1.33	1.33	1.33	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	0.40	0.40	0.00
Uniform Delay (d), s/veh	24.5	30.3	23.3				0.0	25.9	25.9	27.3	7.9	0.0
Incr Delay (d2), s/veh	0.2	2.7	0.1				0.0	710.6	958.6	152.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.3	18.2	3.6				0.0	248.7	302.0	32.6	5.3	0.0
LnGrp Delay(d),s/veh	24.8	33.0	23.4				0.0	736.5	984.5	179.4	8.0	0.0
LnGrp LOS	C	C	C					F	F	F	A	
Approach Vol, veh/h		1717						2591			1238	
Approach Delay, s/veh		31.5						820.7			46.4	
Approach LOS		C						F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	42.7		40.3		59.7		
Change Period (Y+Rc), s	6.4	6.4		6.4		6.4		
Max Green Setting (Gmax), s	10.6	32.6		37.6		49.6		
Max Q Clear Time (g_c+I1), s	12.6	38.3		27.6		9.4		
Green Ext Time (p_c), s	0.0	0.0		6.3		3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	403.5
HCM 2010 LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

HCM Signalized Intersection Capacity Analysis
1402: SB On-Ramp/NW 6th Ct & NW 135th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2343	219	0	0	0	0	0	0	596	419	0
Future Volume (vph)	0	2343	219	0	0	0	0	0	0	596	419	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8	6.8							6.8	6.8	
Lane Util. Factor		*0.80	0.88							0.91	0.91	
Frt		1.00	0.85							1.00	1.00	
Flt Protected		1.00	1.00							0.95	0.98	
Satd. Flow (prot)		5961	2787							1610	3326	
Flt Permitted		1.00	1.00							0.95	0.98	
Satd. Flow (perm)		5961	2787							1610	3326	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2343	219	0	0	0	0	0	0	596	419	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	0	22	22	0
Lane Group Flow (vph)	0	2343	136	0	0	0	0	0	0	312	659	0
Turn Type		NA	Perm							custom	NA	
Protected Phases		2								4	4	
Permitted Phases			2							4		
Actuated Green, G (s)		40.7	40.7							45.7	45.7	
Effective Green, g (s)		40.7	40.7							45.7	45.7	
Actuated g/C Ratio		0.41	0.41							0.46	0.46	
Clearance Time (s)		6.8	6.8							6.8	6.8	
Vehicle Extension (s)		1.0	1.0							2.5	2.5	
Lane Grp Cap (vph)		2426	1134							735	1519	
v/s Ratio Prot		c0.39								0.19	c0.20	
v/s Ratio Perm			0.05									
v/c Ratio		0.97	0.12							0.42	0.43	
Uniform Delay, d1		29.0	18.5							18.3	18.4	
Progression Factor		0.65	0.60							1.54	1.50	
Incremental Delay, d2		1.8	0.0							0.2	0.1	
Delay (s)		20.7	11.0							28.4	27.6	
Level of Service		C	B							C	C	
Approach Delay (s)		19.9			0.0			0.0			27.9	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	60		

c Critical Lane Group

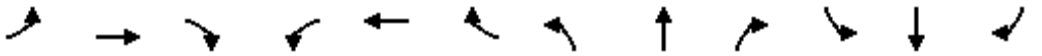
Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	2343	219	334	681
v/c Ratio	0.97	0.18	0.44	0.44
Control Delay	22.0	4.5	26.5	26.6
Queue Delay	56.7	0.0	0.0	0.0
Total Delay	78.7	4.5	26.5	26.6
Queue Length 50th (ft)	300	5	153	165
Queue Length 95th (ft)	m331	m10	m254	m237
Internal Link Dist (ft)	302			402
Turn Bay Length (ft)		170	190	
Base Capacity (vph)	2425	1217	765	1558
Starvation Cap Reductn	152	0	0	0
Spillback Cap Reductn	43	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.18	0.44	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1403: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 135th St

2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1678	1260	0	0	0	0	0	1197	614	0	0	0
Future Volume (vph)	1678	1260	0	0	0	0	0	1197	614	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.8	6.8						6.8	6.8			
Lane Util. Factor	0.97	0.91						0.91	0.88			
Frt	1.00	1.00						1.00	0.85			
Flt Protected	0.95	1.00						1.00	1.00			
Satd. Flow (prot)	3400	5036						5036	2760			
Flt Permitted	0.95	1.00						1.00	1.00			
Satd. Flow (perm)	3400	5036						5036	2760			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1678	1260	0	0	0	0	0	1197	614	0	0	0
RTOR Reduction (vph)	18	0	0	0	0	0	0	0	80	0	0	0
Lane Group Flow (vph)	1660	1260	0	0	0	0	0	1197	534	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	custom	NA						NA	Perm			
Protected Phases	2 7	2 7						8				
Permitted Phases	2 7								8			
Actuated Green, G (s)	55.7	55.7						30.7	30.7			
Effective Green, g (s)	55.7	55.7						30.7	30.7			
Actuated g/C Ratio	0.56	0.56						0.31	0.31			
Clearance Time (s)								6.8	6.8			
Vehicle Extension (s)								2.5	2.5			
Lane Grp Cap (vph)	1893	2805						1546	847			
v/s Ratio Prot	c0.49	0.25						c0.24				
v/s Ratio Perm									0.19			
v/c Ratio	0.88	0.45						0.77	0.63			
Uniform Delay, d1	19.2	13.1						31.5	29.8			
Progression Factor	0.38	0.36						1.00	1.00			
Incremental Delay, d2	2.5	0.0						2.4	1.4			
Delay (s)	9.8	4.8						33.9	31.1			
Level of Service	A	A						C	C			
Approach Delay (s)		7.7			0.0			33.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.4
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBT	NBT	NBR
Lane Group Flow (vph)	1678	1260	1197	614
v/c Ratio	0.88	0.45	0.77	0.66
Control Delay	11.1	5.1	35.6	28.1
Queue Delay	61.8	1.3	184.6	0.0
Total Delay	72.8	6.4	220.1	28.1
Queue Length 50th (ft)	94	52	250	155
Queue Length 95th (ft)	m108	m61	353	263
Internal Link Dist (ft)		165	421	
Turn Bay Length (ft)				
Base Capacity (vph)	1911	2803	1571	940
Starvation Cap Reductn	282	1240	0	0
Spillback Cap Reductn	4	0	553	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.81	1.18	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1404: NW 7th Ave/SR 7 & Opa-Locka Blvd

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	324	774	44	777	1146	0	0	913	178
Future Volume (veh/h)	0	0	0	324	774	44	777	1146	0	0	913	178
Number				7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	1845	1845	1845	1845	0	0	1845	1900
Adj Flow Rate, veh/h				274	843	44	777	1146	0	0	913	178
Adj No. of Lanes				1	3	1	1	3	0	0	3	0
Peak Hour Factor				0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				356	1120	317	636	3357	0	0	1383	269
Arrive On Green				0.20	0.20	0.20	0.37	0.89	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1757	5534	1568	1757	5202	0	0	4401	822
Grp Volume(v), veh/h				274	843	44	777	1146	0	0	723	368
Grp Sat Flow(s),veh/h/ln				1757	1845	1568	1757	1679	0	0	1679	1700
Q Serve(g_s), s				14.7	14.3	2.3	27.6	3.7	0.0	0.0	17.1	17.2
Cycle Q Clear(g_c), s				14.7	14.3	2.3	27.6	3.7	0.0	0.0	17.1	17.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.48
Lane Grp Cap(c), veh/h				356	1120	317	636	3357	0	0	1097	555
V/C Ratio(X)				0.77	0.75	0.14	1.22	0.34	0.00	0.00	0.66	0.66
Avail Cap(c_a), veh/h				474	1494	423	636	3357	0	0	1097	555
HCM Platoon Ratio				1.00	1.00	1.00	1.33	1.33	1.00	1.00	1.33	1.33
Upstream Filter(I)				0.93	0.93	0.93	0.09	0.09	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.7	37.5	32.7	18.5	2.1	0.0	0.0	23.9	23.9
Incr Delay (d2), s/veh				3.5	0.9	0.1	401.3	0.0	0.0	0.0	3.2	6.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.8	11.6	1.8	151.6	2.2	0.0	0.0	13.1	13.9
LnGrp Delay(d),s/veh				41.2	38.4	32.8	419.8	2.1	0.0	0.0	27.0	30.2
LnGrp LOS				D	D	C	F	A			C	C
Approach Vol, veh/h					1161			1923			1091	
Approach Delay, s/veh					38.9			170.9			28.1	
Approach LOS					D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	34.0	39.1		26.9		73.1		
Change Period (Y+Rc), s	6.4	6.4		* 6.7		6.4		
Max Green Setting (Gmax), s	27.6	25.9		* 27		59.9		
Max Q Clear Time (g_c+I1), s	29.6	19.2		16.7		5.7		
Green Ext Time (p_c), s	0.0	2.0		3.5		3.7		

Intersection Summary	
HCM 2010 Ctrl Delay	96.9
HCM 2010 LOS	F

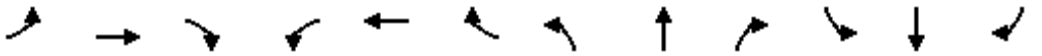
Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1405: NW 6th Ct/NW 6th Ct/SB Off-Ramp & Opa-Locka Blvd

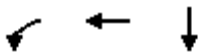
2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	280	912	0	0	0	0	0	734	231
Future Volume (vph)	0	0	0	280	912	0	0	0	0	0	734	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0						6.4	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.96	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1522	4799						3412	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1522	4799						3412	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	280	912	0	0	0	0	0	734	231
RTOR Reduction (vph)	0	0	0	41	19	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	211	921	0	0	0	0	0	935	0
Turn Type				Perm	NA						NA	
Protected Phases					2 7						8	
Permitted Phases				2 7								
Actuated Green, G (s)				49.4	49.4						37.8	
Effective Green, g (s)				49.4	49.4						37.8	
Actuated g/C Ratio				0.49	0.49						0.38	
Clearance Time (s)											6.4	
Vehicle Extension (s)											3.0	
Lane Grp Cap (vph)				751	2370						1289	
v/s Ratio Prot											c0.27	
v/s Ratio Perm				0.14	0.19							
v/c Ratio				0.28	0.39						0.73	
Uniform Delay, d1				14.9	15.8						26.7	
Progression Factor				0.22	0.35						1.00	
Incremental Delay, d2				0.2	0.1						2.1	
Delay (s)				3.5	5.7						28.7	
Level of Service				A	A						C	
Approach Delay (s)		0.0			5.2			0.0			28.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	60		

c Critical Lane Group



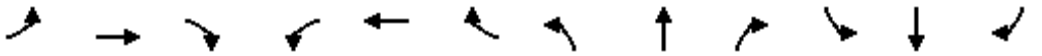
Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	252	940	965
v/c Ratio	0.32	0.39	0.73
Control Delay	3.2	5.7	29.4
Queue Delay	0.5	0.2	0.0
Total Delay	3.6	5.9	29.4
Queue Length 50th (ft)	6	39	262
Queue Length 95th (ft)	m32	m62	400
Internal Link Dist (ft)		151	338
Turn Bay Length (ft)			
Base Capacity (vph)	801	2419	1320
Starvation Cap Reductn	243	660	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.53	0.73

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1406: NW 6th Ave/NW 6th Ave/NB On-Ramp & Opa-Locka Blvd

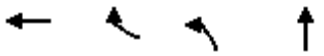
2045 Build Scenario
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	880	572	312	2563	0	0	0	0
Future Volume (vph)	0	0	0	0	880	572	312	2563	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0	6.0	6.4	6.4				
Lane Util. Factor					*0.82	1.00	0.86	0.86				
Frt					1.00	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					6050	1568	1507	4756				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					6050	1568	1507	4756				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	880	572	312	2563	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	72	15	15	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	880	500	266	2579	0	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					33.0	33.0	54.6	54.6				
Effective Green, g (s)					33.0	33.0	54.6	54.6				
Actuated g/C Ratio					0.33	0.33	0.55	0.55				
Clearance Time (s)					6.0	6.0	6.4	6.4				
Vehicle Extension (s)					1.0	1.0	3.0	3.0				
Lane Grp Cap (vph)					1996	517	822	2596				
v/s Ratio Prot					0.15							
v/s Ratio Perm						c0.32	0.18	0.54				
v/c Ratio					0.44	0.97	0.32	0.99				
Uniform Delay, d1					26.3	33.0	12.5	22.5				
Progression Factor					1.00	1.00	1.11	1.12				
Incremental Delay, d2					0.7	54.1	0.1	20.2				
Delay (s)					27.0	87.0	14.0	45.4				
Level of Service					C	F	B	D				
Approach Delay (s)		0.0			50.6			42.3			0.0	
Approach LOS		A			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	60		
c Critical Lane Group			

Queues
1406: NW 6th Ave/NW 6th Ave/NB On-Ramp & Opa-Locka Blvd



Lane Group	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	880	572	281	2594
v/c Ratio	0.44	0.97	0.34	0.99
Control Delay	27.1	79.8	13.1	46.0
Queue Delay	0.0	0.0	0.0	168.0
Total Delay	27.1	79.8	13.1	214.0
Queue Length 50th (ft)	133	303	116	690
Queue Length 95th (ft)	188	#641	m127	m#915
Internal Link Dist (ft)	475			403
Turn Bay Length (ft)		225		
Base Capacity (vph)	1996	589	837	2610
Starvation Cap Reductn	0	0	0	288
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.97	0.34	1.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1501: NW 7th Ave/SR 7 & NW 151st St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	300	21	204	44	128	15	981	310	137	633	32
Future Volume (veh/h)	228	300	21	204	44	128	15	981	310	137	633	32
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	228	300	21	204	44	128	15	981	310	137	633	32
Adj No. of Lanes	1	2	0	1	1	1	1	3	0	1	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	324	701	49	361	666	669	360	1436	453	264	2495	126
Arrive On Green	0.21	0.21	0.21	0.09	0.36	0.36	0.50	0.50	0.50	0.09	0.68	0.68
Sat Flow, veh/h	1196	3325	232	1757	1845	1568	760	3794	1197	1757	4911	247
Grp Volume(v), veh/h	228	157	164	204	44	128	15	868	423	137	432	233
Grp Sat Flow(s),veh/h/ln	1196	1752	1804	1757	1845	1568	760	1679	1633	1757	1679	1801
Q Serve(g_s), s	18.6	7.8	7.9	8.6	1.6	5.1	1.0	19.6	19.6	4.6	5.0	5.1
Cycle Q Clear(g_c), s	18.6	7.8	7.9	8.6	1.6	5.1	1.0	19.6	19.6	4.6	5.0	5.1
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.73	1.00		0.14
Lane Grp Cap(c), veh/h	324	370	381	361	666	669	360	1271	618	264	1706	915
V/C Ratio(X)	0.70	0.43	0.43	0.56	0.07	0.19	0.04	0.68	0.68	0.52	0.25	0.25
Avail Cap(c_a), veh/h	339	391	402	361	688	687	360	1271	618	353	1706	915
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	34.2	34.2	27.3	20.9	17.9	15.7	20.3	20.3	18.6	8.8	8.8
Incr Delay (d2), s/veh	6.3	0.8	0.8	2.0	0.0	0.1	0.2	3.0	6.2	1.6	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.0	6.9	7.2	7.9	1.4	4.0	0.4	14.6	15.0	4.1	4.3	4.8
LnGrp Delay(d),s/veh	44.8	35.0	35.0	29.4	21.0	18.1	15.9	23.3	26.5	20.2	9.2	9.5
LnGrp LOS	D	C	D	C	C	B	B	C	C	C	A	A
Approach Vol, veh/h		549			376			1306			802	
Approach Delay, s/veh		39.1			24.5			24.3			11.1	
Approach LOS		D			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6	7	8
Phs Duration (G+Y+Rc), s		57.2		42.8	12.9	44.3	15.0	27.8
Change Period (Y+Rc), s		6.4		* 6.7	6.4	6.4	6.4	* 6.7
Max Green Setting (Gmax), s		49.6		* 37	11.6	31.6	8.6	* 22
Max Q Clear Time (g_c+I1), s		7.1		7.1	6.6	21.6	10.6	20.6
Green Ext Time (p_c), s		5.0		0.6	0.1	6.0	0.0	0.5

Intersection Summary		
HCM 2010 Ctrl Delay		23.5
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1503: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 151st St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	62	0	0	165	38	195	299	37	10	0	390
Future Volume (vph)	220	62	0	0	165	38	195	299	37	10	0	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6		4.8	4.8	4.8		5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	1.00		1.00	
Frt	1.00	1.00			0.97		1.00	1.00	0.85		0.87	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00		1.00	
Satd. Flow (prot)	1787	1881			1834		1787	1881	1599		1632	
Flt Permitted	0.63	1.00			1.00		0.95	1.00	1.00		0.45	
Satd. Flow (perm)	1186	1881			1834		1787	1881	1599		737	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	62	0	0	165	38	195	299	37	10	0	390
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	29	0	298	0
Lane Group Flow (vph)	220	62	0	0	197	0	195	299	8	0	102	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA			NA		Split	NA	Perm	Perm	NA	
Protected Phases		6!			2		4	4			6!	
Permitted Phases	6!								4	6!		
Actuated Green, G (s)	27.8	27.8			50.2		24.0	24.0	24.0		27.8	
Effective Green, g (s)	27.8	27.8			50.2		24.0	24.0	24.0		27.8	
Actuated g/C Ratio	0.24	0.24			0.43		0.20	0.20	0.20		0.24	
Clearance Time (s)	5.6	5.6			5.6		4.8	4.8	4.8		5.6	
Vehicle Extension (s)	1.0	1.0			1.0		2.5	2.5	2.5		1.0	
Lane Grp Cap (vph)	279	443			780		363	382	325		173	
v/s Ratio Prot		0.03			c0.11		0.11	c0.16				
v/s Ratio Perm	c0.19								0.00		0.14	
v/c Ratio	0.79	0.14			0.25		0.54	0.78	0.02		0.59	
Uniform Delay, d1	42.3	35.7			21.8		42.0	44.5	37.6		40.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	13.9	0.1			0.8		1.2	10.4	0.0		3.3	
Delay (s)	56.3	35.7			22.6		43.2	54.9	37.6		43.4	
Level of Service	E	D			C		D	D	D		D	
Approach Delay (s)		51.7			22.6			49.4			43.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	60		

! Phase conflict between lane groups.
c Critical Lane Group

Queues
1503: NW 6th Ave/NB Off-Ramp/NW 6th Ave & NW 151st St

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	220	62	203	195	299	37	400
v/c Ratio	0.79	0.14	0.26	0.54	0.78	0.10	0.85
Control Delay	63.7	32.9	26.3	46.6	59.8	1.2	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	32.9	26.3	46.6	59.8	1.2	24.7
Queue Length 50th (ft)	162	38	90	133	217	0	6
Queue Length 95th (ft)	243	69	232	218	334	9	#312
Internal Link Dist (ft)		229	317		343		406
Turn Bay Length (ft)	125						
Base Capacity (vph)	386	614	818	426	449	440	502
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.10	0.25	0.46	0.67	0.08	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1601: NW 7th Ave/SR 7 & GGI SB Off-Ramp

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	368	0	10	0	824	0	0	621	0
Future Volume (vph)	0	0	0	368	0	10	0	824	0	0	621	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.4	4.5	6.4		6.4			6.4	
Lane Util. Factor				0.91	0.86	0.95		0.95			0.91	
Frt				1.00	1.00	0.85		1.00			1.00	
Flt Protected				0.95	0.95	1.00		1.00			1.00	
Satd. Flow (prot)				3189	1510	1490		3505			5036	
Flt Permitted				0.95	0.95	1.00		1.00			1.00	
Satd. Flow (perm)				3189	1510	1490		3505			5036	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	368	0	10	0	824	0	0	621	0
RTOR Reduction (vph)	0	0	0	0	38	5	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	247	84	4	0	824	0	0	621	0
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%	3%	2%
Turn Type	Perm		Perm	Prot	NA	custom	Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases	4		4			3	2					
Actuated Green, G (s)				55.5	57.4	55.5		44.2			44.2	
Effective Green, g (s)				55.5	57.4	55.5		44.2			44.2	
Actuated g/C Ratio				0.49	0.51	0.49		0.39			0.39	
Clearance Time (s)				6.4	4.5	6.4		6.4			6.4	
Vehicle Extension (s)				2.5	3.0	2.5		1.0			1.0	
Lane Grp Cap (vph)				1573	770	735		1377			1978	
v/s Ratio Prot				c0.08	0.05			c0.24			0.12	
v/s Ratio Perm					0.00	0.00						
v/c Ratio				0.16	0.11	0.01		0.60			0.31	
Uniform Delay, d1				15.7	14.3	14.5		27.1			23.7	
Progression Factor				1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2				0.0	0.1	0.0		1.9			0.4	
Delay (s)				15.7	14.4	14.5		29.0			24.1	
Level of Service				B	B	B		C			C	
Approach Delay (s)		0.0			15.2			29.0			24.1	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	17.3
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Queues
1601: NW 7th Ave/SR 7 & GGI SB Off-Ramp

Lane Group	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	247	122	9	824	621
v/c Ratio	0.16	0.15	0.01	0.60	0.31
Control Delay	14.9	4.7	0.0	34.2	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	4.7	0.0	34.2	28.5
Queue Length 50th (ft)	39	13	0	295	135
Queue Length 95th (ft)	75	56	0	398	179
Internal Link Dist (ft)		320		184	470
Turn Bay Length (ft)	300				
Base Capacity (vph)	1726	808	841	1573	2260
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.15	0.01	0.52	0.27

Intersection Summary

HCM 2010 Signalized Intersection Summary
1602: NW 7th Ave/SR 7 & Park and Ride

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	32	10	0	1	72	9	814	5	147	604	169
Future Volume (veh/h)	125	32	10	0	1	72	9	814	5	147	604	169
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1759	1759	1759	1900
Adj Flow Rate, veh/h	78	97	0	0	1	0	9	814	0	147	604	0
Adj No. of Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	8	8	8
Cap, veh/h	226	238	0	4	4	3	383	1080	483	375	1347	0
Arrive On Green	0.14	0.14	0.00	0.00	0.00	0.00	0.01	0.32	0.00	0.09	0.40	0.00
Sat Flow, veh/h	1675	1759	0	1675	1759	1495	1675	3343	1495	1675	3431	0
Grp Volume(v), veh/h	78	97	0	0	1	0	9	814	0	147	604	0
Grp Sat Flow(s),veh/h/ln	1675	1759	0	1675	1759	1495	1675	1671	1495	1675	1671	0
Q Serve(g_s), s	2.0	2.3	0.0	0.0	0.0	0.0	0.2	10.1	0.0	2.6	6.1	0.0
Cycle Q Clear(g_c), s	2.0	2.3	0.0	0.0	0.0	0.0	0.2	10.1	0.0	2.6	6.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	226	238	0	4	4	3	383	1080	483	375	1347	0
V/C Ratio(X)	0.34	0.41	0.00	0.00	0.26	0.00	0.02	0.75	0.00	0.39	0.45	0.00
Avail Cap(c_a), veh/h	758	796	0	1155	1213	1031	1060	5683	2543	449	4747	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.2	18.4	0.0	0.0	23.1	0.0	10.4	14.0	0.0	10.1	10.1	0.0
Incr Delay (d2), s/veh	0.7	0.8	0.0	0.0	26.7	0.0	0.0	0.4	0.0	0.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	2.1	0.0	0.0	0.1	0.0	0.1	8.3	0.0	2.2	5.0	0.0
LnGrp Delay(d),s/veh	18.9	19.2	0.0	0.0	49.9	0.0	10.4	14.5	0.0	10.6	10.2	0.0
LnGrp LOS	B	B			D		B	B		B	B	
Approach Vol, veh/h		175			1			823			751	
Approach Delay, s/veh		19.1			49.8			14.4			10.3	
Approach LOS		B			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	20.1		11.3	6.2	23.8		5.1
Change Period (Y+Rc), s	5.7	* 5.1		5.0	5.7	* 5.1		5.0
Max Green Setting (Gmax), s	6.3	* 79		21.0	19.3	* 66		32.0
Max Q Clear Time (g_c+I1), s	4.6	12.1		4.3	2.2	8.1		2.0
Green Ext Time (p_c), s	0.0	2.4		0.5	0.0	1.7		0.0

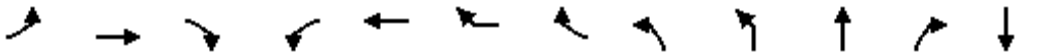
Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1603: NW 2nd Ave & NW 167th St & NB On-Ramp (US 441)

2045 Build Scenario
Timing Plan: PM Peak Hour



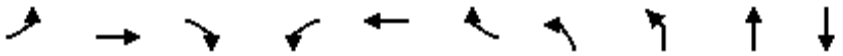
Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBT
Lane Configurations												
Traffic Volume (vph)	590	2470	866	52	1766	84	37	613	184	105	16	10
Future Volume (vph)	590	2470	866	52	1766	84	37	613	184	105	16	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.0	4.0	5.0	5.0		5.0	4.5	4.5	6.9		6.9
Lane Util. Factor	0.97	0.91	1.00	1.00	*0.93		*1.00	0.95	0.95	1.00		1.00
Frt	1.00	1.00	0.85	1.00	0.99		0.85	1.00	1.00	0.98		0.87
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.95	1.00		1.00
Satd. Flow (prot)	3433	5085	1583	1770	5162		1583	1681	1681	1826		1616
Flt Permitted	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.95	1.00		1.00
Satd. Flow (perm)	3433	5085	1583	1770	5162		1583	1681	1681	1826		1616
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	590	2470	866	52	1766	84	37	613	184	105	16	10
RTOR Reduction (vph)	0	0	0	0	0	0	22	0	0	4	0	7
Lane Group Flow (vph)	590	2470	866	52	1850	0	15	398	399	117	0	476
Turn Type	Prot	NA	Free	Prot	NA		Perm	Prot	Prot	NA		NA
Protected Phases	1	6		5	2			7	7	4		8
Permitted Phases			Free				2					
Actuated Green, G (s)	5.6	56.2	139.0	4.7	54.9		54.9	30.5	30.5	61.2		26.2
Effective Green, g (s)	5.6	56.2	139.0	4.7	54.9		54.9	30.5	30.5	61.2		26.2
Actuated g/C Ratio	0.04	0.40	1.00	0.03	0.39		0.39	0.22	0.22	0.44		0.19
Clearance Time (s)	5.4	5.0		5.0	5.0		5.0	4.5	4.5	6.9		6.9
Vehicle Extension (s)	4.5	1.0		3.0	1.0		1.0	3.0	3.0	2.5		2.5
Lane Grp Cap (vph)	138	2055	1583	59	2038		625	368	368	803		304
v/s Ratio Prot	c0.17	c0.49		0.03	0.36			0.24	c0.24	0.06		c0.29
v/s Ratio Perm			c0.55				0.01					
v/c Ratio	4.28	1.20	0.55	0.88	0.91		0.02	1.08	1.08	0.15		1.56
Uniform Delay, d1	66.7	41.4	0.0	66.9	39.7		25.7	54.2	54.2	23.3		56.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	5912.6	368.6	1.4	118.0	6.8		0.0	195.5	199.5	0.1		1032.8
Delay (s)	5979.3	410.0	1.4	184.8	46.5		25.7	249.7	253.7	23.3		1089.2
Level of Service	F	F	A	F	D		C	F	F	C		F
Approach Delay (s)		1156.9			49.8					221.6		1089.2
Approach LOS		F			D					F		F

Intersection Summary			
HCM 2000 Control Delay	738.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	21.8
Intersection Capacity Utilization	124.9%	ICU Level of Service	H
Analysis Period (min)	60		

c Critical Lane Group

Movement	SBR	SBR2
Lane Configurations		
Traffic Volume (vph)	365	108
Future Volume (vph)	365	108
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	1.00	1.00
Adj. Flow (vph)	365	108
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

Queues
1603: NW 2nd Ave & NW 167th St & NB On-Ramp (US 441)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBL	NBT	SBT
Lane Group Flow (vph)	590	2470	866	52	1850	37	398	399	121	483
v/c Ratio	4.24	1.19	0.55	0.68	0.92	0.05	1.07	1.07	0.15	1.54
Control Delay	5871.7	387.3	1.4	112.7	49.4	0.2	230.3	234.0	22.7	1031.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5871.7	387.3	1.4	112.7	49.4	0.2	230.3	234.0	22.7	1031.9
Queue Length 50th (ft)	~507	~1005	0	48	560	0	~427	~429	62	~619
Queue Length 95th (ft)	#705	#1293	0	#140	#797	0	#757	#762	118	#969
Internal Link Dist (ft)		343			1250				512	496
Turn Bay Length (ft)	230		290	200		110	230	230		
Base Capacity (vph)	139	2073	1583	76	2096	707	372	372	812	313
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.24	1.19	0.55	0.68	0.88	0.05	1.07	1.07	0.15	1.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1604: N Miami Ave & NW 167th St

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	2077	77	146	1639	45	176	160	189	98	78	45
Future Volume (veh/h)	113	2077	77	146	1639	45	176	160	189	98	78	45
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	113	2077	77	146	1639	45	176	160	189	98	78	45
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	223	2763	102	179	2836	78	374	194	229	163	211	122
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.09	0.25	0.25	0.03	0.19	0.19
Sat Flow, veh/h	1774	5034	186	1774	5089	140	1774	779	921	1774	1110	640
Grp Volume(v), veh/h	113	1397	757	146	1092	592	176	0	349	98	0	123
Grp Sat Flow(s),veh/h/ln	1774	1695	1830	1774	1695	1838	1774	0	1700	1774	0	1750
Q Serve(g_s), s	4.2	47.4	47.7	5.4	31.5	31.6	11.6	0.0	29.1	5.0	0.0	9.2
Cycle Q Clear(g_c), s	4.2	47.4	47.7	5.4	31.5	31.6	11.6	0.0	29.1	5.0	0.0	9.2
Prop In Lane	1.00		0.10	1.00		0.08	1.00		0.54	1.00		0.37
Lane Grp Cap(c), veh/h	223	1861	1004	179	1889	1024	374	0	423	163	0	333
V/C Ratio(X)	0.51	0.75	0.75	0.82	0.58	0.58	0.47	0.00	0.83	0.60	0.00	0.37
Avail Cap(c_a), veh/h	333	1861	1004	236	1889	1024	436	0	423	163	0	333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	26.0	26.0	30.7	21.7	21.7	41.8	0.0	53.3	54.2	0.0	52.9
Incr Delay (d2), s/veh	0.1	0.3	0.5	12.9	1.3	2.4	0.3	0.0	19.0	4.4	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	24.5	26.5	7.1	21.4	23.3	9.6	0.0	22.4	6.2	0.0	8.3
LnGrp Delay(d),s/veh	18.5	26.2	26.5	43.6	23.0	24.1	42.2	0.0	72.3	58.5	0.0	56.0
LnGrp LOS	B	C	C	D	C	C	D		E	E		E
Approach Vol, veh/h		2267			1830			525			221	
Approach Delay, s/veh		25.9			25.0			62.2			57.1	
Approach LOS		C			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	88.5	8.0	42.8	12.0	87.2	16.7	34.1
Change Period (Y+Rc), s	4.5	* 4.9	3.0	5.5	4.5	* 4.9	3.0	5.5
Max Green Setting (Gmax), s	15.5	* 74	5.0	37.3	12.3	* 78	19.0	23.3
Max Q Clear Time (g_c+I1), s	6.2	33.6	7.0	31.1	7.4	49.7	13.6	11.2
Green Ext Time (p_c), s	0.1	5.4	0.0	0.9	0.1	7.8	0.1	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1606: NW 7th Avenue Extension & NW 4th Ave & NW 171st St/NW 7th Ave

2045 Build Scenario
Timing Plan: PM Peak Hour

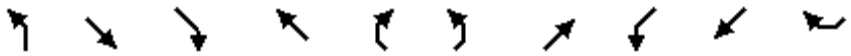
Movement	NBL2	NBL	NBR	SEL	SET	SER	SER2	NWL	NWT	NWR	NEL	NET
Lane Configurations												
Traffic Volume (vph)	36	10	19	64	7	4	114	114	52	18	290	976
Future Volume (vph)	36	10	19	64	7	4	114	114	52	18	290	976
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0			6.0	6.0	6.0	6.0
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00	1.00	0.95
Frpb, ped/bikes		1.00			1.00	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00	1.00			1.00	1.00	1.00	1.00
Frt		0.96			1.00	0.85			1.00	0.85	1.00	0.97
Flt Protected		0.97			0.96	1.00			0.97	1.00	0.95	1.00
Satd. Flow (prot)		1663			1715	1524			1733	1524	1703	3314
Flt Permitted		0.97			0.96	1.00			0.75	1.00	0.95	1.00
Satd. Flow (perm)		1663			1715	1524			1346	1524	1703	3314
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	36	10	19	64	7	4	114	114	52	18	290	976
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	0	16	0	1
Lane Group Flow (vph)	0	65	0	0	71	16	0	0	166	2	290	1189
Confl. Peds. (#/hr)												
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Prot	Prot		Split	NA	Prot		Perm	NA	Perm	Prot	NA
Protected Phases	4	4		8!	8	8			8!		1	6
Permitted Phases								8		8		
Actuated Green, G (s)		8.3			16.9	16.9			16.9	16.9	23.5	80.0
Effective Green, g (s)		8.3			16.9	16.9			16.9	16.9	23.5	80.0
Actuated g/C Ratio		0.07			0.14	0.14			0.14	0.14	0.19	0.65
Clearance Time (s)		6.0			6.0	6.0			6.0	6.0	6.0	6.0
Vehicle Extension (s)		2.5			2.5	2.5			2.5	2.5	2.0	1.0
Lane Grp Cap (vph)		112			235	209			184	209	324	2151
v/s Ratio Prot		c0.04			0.04	0.01					c0.17	0.36
v/s Ratio Perm									c0.12	0.00		
v/c Ratio		0.58			0.30	0.08			0.90	0.01	0.90	0.55
Uniform Delay, d1		55.8			47.8	46.4			52.3	45.9	48.6	11.8
Progression Factor		1.00			1.00	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2		6.3			0.5	0.1			57.2	0.0	32.4	0.2
Delay (s)		62.1			48.4	46.5			109.5	46.0	81.1	12.0
Level of Service		E			D	D			F	D	F	B
Approach Delay (s)		62.1			47.2				103.3			25.5
Approach LOS		E			D				F			C

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	123.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	60		

! Phase conflict between lane groups.
c Critical Lane Group

Movement	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	180	34	37	11	1284	122
Future Volume (vph)	180	34	37	11	1284	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.0	6.0	6.0
Lane Util. Factor				1.00	0.95	1.00
Frpb, ped/bikes				1.00	1.00	1.00
Flpb, ped/bikes				0.98	1.00	1.00
Frt				1.00	1.00	0.85
Flt Protected				0.95	1.00	1.00
Satd. Flow (prot)				1666	3406	1524
Flt Permitted				0.24	1.00	1.00
Satd. Flow (perm)				416	3406	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	34	37	11	1284	122
RTOR Reduction (vph)	0	0	0	0	0	72
Lane Group Flow (vph)	0	0	0	48	1284	50
Confl. Peds. (#/hr)			92			
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type			Prot	Perm	NA	Perm
Protected Phases			5		2	
Permitted Phases				2		2
Actuated Green, G (s)				50.5	50.5	50.5
Effective Green, g (s)				50.5	50.5	50.5
Actuated g/C Ratio				0.41	0.41	0.41
Clearance Time (s)				6.0	6.0	6.0
Vehicle Extension (s)				1.0	1.0	1.0
Lane Grp Cap (vph)				170	1396	624
v/s Ratio Prot					c0.38	
v/s Ratio Perm				0.12		0.03
v/c Ratio				0.28	0.92	0.08
Uniform Delay, d1				24.3	34.4	22.2
Progression Factor				1.00	1.00	1.00
Incremental Delay, d2				0.3	11.5	0.0
Delay (s)				24.6	45.9	22.2
Level of Service				C	D	C
Approach Delay (s)					43.2	
Approach LOS					D	

Intersection Summary



Lane Group	NBL	SET	SER	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	65	71	118	166	18	290	1190	48	1284	122
v/c Ratio	0.47	0.30	0.34	0.89	0.05	0.88	0.55	0.28	0.91	0.17
Control Delay	69.3	56.7	5.0	116.5	0.3	86.5	12.9	30.0	46.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	56.7	5.0	116.5	0.3	86.5	12.9	30.0	46.8	1.6
Queue Length 50th (ft)	52	54	0	137	0	238	260	25	508	0
Queue Length 95th (ft)	118	124	37	#360	0	#542	419	71	#827	26
Internal Link Dist (ft)	585	329		410			390		683	
Turn Bay Length (ft)						190				
Base Capacity (vph)	230	237	352	186	352	328	2300	210	1714	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.30	0.34	0.89	0.05	0.88	0.52	0.23	0.75	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 2010 Signalized Intersection Summary
1701: NE 2nd Ct & Miami Gardens Dr

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	1840	6	42	1625	155	16	0	157	228	1	115
Future Volume (veh/h)	39	1840	6	42	1625	155	16	0	157	228	1	115
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	39	1840	6	42	1625	155	16	0	157	229	0	115
Adj No. of Lanes	1	3	0	1	3	0	1	1	0	2	0	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	3150	10	195	2848	271	201	0	179	311	0	182
Arrive On Green	0.03	0.60	0.60	0.03	0.60	0.60	0.11	0.00	0.11	0.09	0.00	0.09
Sat Flow, veh/h	1774	5233	17	1774	4724	450	1774	0	1583	3548	0	1583
Grp Volume(v), veh/h	39	1192	654	42	1166	614	16	0	157	229	0	115
Grp Sat Flow(s),veh/h/ln	1774	1695	1860	1774	1695	1783	1774	0	1583	1774	0	1583
Q Serve(g_s), s	1.2	31.5	31.5	1.3	30.4	30.5	1.2	0.0	14.3	9.2	0.0	10.1
Cycle Q Clear(g_c), s	1.2	31.5	31.5	1.3	30.4	30.5	1.2	0.0	14.3	9.2	0.0	10.1
Prop In Lane	1.00		0.01	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	2041	1120	195	2044	1075	201	0	179	311	0	182
V/C Ratio(X)	0.19	0.58	0.58	0.22	0.57	0.57	0.08	0.00	0.88	0.74	0.00	0.63
Avail Cap(c_a), veh/h	222	2041	1120	228	2044	1075	253	0	226	454	0	246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.44	0.44	0.44	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	17.8	17.8	14.3	17.5	17.6	57.9	0.0	63.7	65.0	0.0	61.7
Incr Delay (d2), s/veh	0.2	1.2	2.3	0.1	0.5	1.0	0.1	0.0	30.6	3.6	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.1	21.5	23.6	1.2	18.4	19.4	1.1	0.0	12.3	8.2	0.0	8.2
LnGrp Delay(d),s/veh	14.1	19.1	20.1	14.4	18.1	18.6	58.1	0.0	94.3	68.5	0.0	65.3
LnGrp LOS	B	B	C	B	B	B	E		F	E		E
Approach Vol, veh/h		1885			1822			173			344	
Approach Delay, s/veh		19.3			18.1			91.0			67.5	
Approach LOS		B			B			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	94.6		23.7	10.5	94.5		17.3
Change Period (Y+Rc), s	6.4	* 6.6		* 7.2	6.4	* 6.6		4.5
Max Green Setting (Gmax), s	5.6	* 77		* 21	6.8	* 76		18.7
Max Q Clear Time (g_c+I1), s	3.2	32.5		16.3	3.3	33.5		12.1
Green Ext Time (p_c), s	0.0	6.1		0.3	0.0	6.3		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

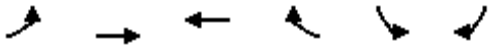
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	986	1239	651	250	822	804
Future Volume (veh/h)	986	1239	651	250	822	804
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	986	0	651	250	822	804
Adj No. of Lanes	3	1	2	1	1	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1055	329	685	775	837	1257
Arrive On Green	0.28	0.00	0.21	0.55	0.47	0.47
Sat Flow, veh/h	5253	1583	3442	1863	1774	1995
Grp Volume(v), veh/h	986	0	651	250	822	804
Grp Sat Flow(s),veh/h/ln	1695	1583	1721	1863	1774	997
Q Serve(g_s), s	22.7	0.0	17.6	8.8	54.7	30.0
Cycle Q Clear(g_c), s	22.7	0.0	17.6	8.8	54.7	30.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1055	329	685	775	837	1257
V/C Ratio(X)	0.93	0.00	0.95	0.32	0.98	0.64
Avail Cap(c_a), veh/h	1055	329	685	775	837	1257
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.00	1.00
Upstream Filter(I)	0.79	0.00	0.26	0.26	1.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	29.3	17.6	31.2	13.8
Incr Delay (d2), s/veh	16.7	0.0	10.4	0.3	46.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.3	0.0	11.7	6.3	47.7	25.4
LnGrp Delay(d),s/veh	59.4	0.0	39.7	17.9	78.0	14.6
LnGrp LOS	E		D	B	E	B
Approach Vol, veh/h	986			901	1626	
Approach Delay, s/veh	59.4			33.7	46.7	
Approach LOS	E			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		57.0		63.0	25.0	32.0		
Change Period (Y+Rc), s		7.1		6.4	6.0	7.1		
Max Green Setting (Gmax), s		49.9		56.6	19.0	24.9		
Max Q Clear Time (g_c+I1), s		10.8		56.7	19.6	24.7		
Green Ext Time (p_c), s		0.5		0.0	0.0	0.1		

Intersection Summary	
HCM 2010 Ctrl Delay	46.9
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
1703: Miami Gardens Dr & NB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1256	134	1301	708	1163	914
Future Volume (veh/h)	1256	134	1301	708	1163	914
Number	1	6	2	12	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1256	134	1301	0	1163	0
Adj No. of Lanes	2	1	2	1	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1050	1251	1109	496	1126	356
Arrive On Green	0.51	1.00	0.31	0.00	0.22	0.00
Sat Flow, veh/h	3442	1863	3632	1583	5003	1583
Grp Volume(v), veh/h	1256	134	1301	0	1163	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1770	1583	1668	1583
Q Serve(g_s), s	36.6	0.0	37.6	0.0	27.0	0.0
Cycle Q Clear(g_c), s	36.6	0.0	37.6	0.0	27.0	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1050	1251	1109	496	1126	356
V/C Ratio(X)	1.20	0.11	1.17	0.00	1.03	0.00
Avail Cap(c_a), veh/h	1050	1304	1109	496	1126	356
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	29.4	0.0	41.2	0.0	46.5	0.0
Incr Delay (d2), s/veh	359.2	0.0	322.4	0.0	92.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	124.9	0.0	122.4	0.0	39.6	0.0
LnGrp Delay(d),s/veh	388.6	0.0	363.6	0.0	138.6	0.0
LnGrp LOS	F	A	F		F	
Approach Vol, veh/h		1390	1301		1163	
Approach Delay, s/veh		351.1	363.6		138.6	
Approach LOS		F	F		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	43.0	44.0		33.0		87.0		
Change Period (Y+Rc), s	6.4	6.4		6.0		* 6.4		
Max Green Setting (Gmax), s	36.6	37.6		27.0		* 84		
Max Q Clear Time (g_c+I1), s	38.6	39.6		29.0		2.0		
Green Ext Time (p_c), s	0.0	0.0		0.0		1.0		

Intersection Summary	
HCM 2010 Ctrl Delay	291.2
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1801: NE 205th Terrace/NE 16th Avenue

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	2117	13	108	2797	202	56	2	293	232	2	49
Future Volume (veh/h)	41	2117	13	108	2797	202	56	2	293	232	2	49
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	41	2117	13	108	2797	202	56	2	293	232	2	49
Adj No. of Lanes	1	3	0	1	3	0	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	3047	19	183	2828	200	348	362	371	332	12	302
Arrive On Green	0.03	0.58	0.58	0.04	0.58	0.58	0.04	0.19	0.19	0.04	0.20	0.20
Sat Flow, veh/h	1774	5215	32	1774	4850	342	1774	1863	1583	1774	62	1530
Grp Volume(v), veh/h	41	1376	754	108	1936	1063	56	2	293	232	0	51
Grp Sat Flow(s),veh/h/ln	1774	1695	1857	1774	1695	1802	1774	1863	1583	1774	0	1593
Q Serve(g_s), s	1.2	36.9	37.0	3.2	72.1	75.8	3.3	0.1	22.6	5.0	0.0	3.5
Cycle Q Clear(g_c), s	1.2	36.9	37.0	3.2	72.1	75.8	3.3	0.1	22.6	5.0	0.0	3.5
Prop In Lane	1.00		0.02	1.00		0.19	1.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	108	1981	1085	183	1977	1051	348	362	371	332	0	314
V/C Ratio(X)	0.38	0.69	0.70	0.59	0.98	1.01	0.16	0.01	0.79	0.70	0.00	0.16
Avail Cap(c_a), veh/h	124	1981	1085	221	1977	1051	354	544	526	332	0	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	18.9	18.9	21.7	26.3	27.1	39.9	42.3	46.8	46.2	0.0	43.3
Incr Delay (d2), s/veh	2.2	2.0	3.7	1.1	15.9	30.7	0.1	0.0	4.5	5.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	24.7	27.3	4.2	47.8	83.4	2.9	0.1	15.6	11.5	0.0	2.8
LnGrp Delay(d),s/veh	34.3	20.9	22.6	22.8	42.2	57.8	40.0	42.3	51.2	51.6	0.0	43.4
LnGrp LOS	C	C	C	C	D	F	D	D	D	D		D
Approach Vol, veh/h		2171			3107			351			283	
Approach Delay, s/veh		21.8			46.9			49.4			50.1	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	82.1	8.0	31.5	8.2	82.3	7.6	32.0
Change Period (Y+Rc), s	4.5	* 6.3	3.0	* 6.3	3.0	* 6.3	3.0	* 6.3
Max Green Setting (Gmax), s	5.0	* 62	5.0	* 38	8.0	* 60	5.0	* 38
Max Q Clear Time (g_c+I1), s	3.2	77.8	7.0	24.6	5.2	39.0	5.3	5.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	12.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
1802: Ives Dairy Road West Crossover

2045 Build Scenario
Timing Plan: PM Peak Hour

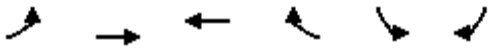
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↑↑↑↑↑									↑↑↑	
Traffic Volume (vph)	0	1886	0	0	0	0	0	0	0	0	2343	0
Future Volume (vph)	0	1886	0	0	0	0	0	0	0	0	2343	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		0.81									0.91	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		7619									5136	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		7619									5136	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1886	0	0	0	0	0	0	0	0	2343	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1886	0	0	0	0	0	0	0	0	2343	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA									NA	
Protected Phases		2									4	
Permitted Phases												
Actuated Green, G (s)		37.5									66.5	
Effective Green, g (s)		37.5									66.5	
Actuated g/C Ratio		0.31									0.55	
Clearance Time (s)		4.5									4.5	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2380									2846	
v/s Ratio Prot		c0.25									c0.46	
v/s Ratio Perm												
v/c Ratio		0.79									0.82	
Uniform Delay, d1		37.7									21.9	
Progression Factor		1.31									0.35	
Incremental Delay, d2		1.4									1.7	
Delay (s)		50.6									9.3	
Level of Service		D									A	
Approach Delay (s)		50.6			0.0			0.0			9.3	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	NWT
Lane Group Flow (vph)	1886	2343
v/c Ratio	0.79	0.82
Control Delay	51.5	9.4
Queue Delay	0.0	0.9
Total Delay	51.5	10.3
Queue Length 50th (ft)	370	128
Queue Length 95th (ft)	410	138
Internal Link Dist (ft)	312	224
Turn Bay Length (ft)		
Base Capacity (vph)	2380	2846
Starvation Cap Reductn	0	243
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.79	0.90

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1803: Ives Dairy Road & I-95 SB Off-Ramp



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑↑↑			↰↰↰	
Traffic Volume (vph)	0	1886	0	0	1387	0
Future Volume (vph)	0	1886	0	0	1387	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Total Lost time (s)		4.5			4.5	
Lane Util. Factor		0.81			0.94	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		7819			5172	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		7819			5172	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1886	0	0	1387	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1886	0	0	1387	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		NA			Prot	
Protected Phases		2 3			4	
Permitted Phases						
Actuated Green, G (s)		44.5			66.5	
Effective Green, g (s)		44.5			66.5	
Actuated g/C Ratio		0.37			0.55	
Clearance Time (s)					4.5	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)		2899			2866	
v/s Ratio Prot		c0.24			c0.27	
v/s Ratio Perm						
v/c Ratio		0.65			0.48	
Uniform Delay, d1		31.3			16.3	
Progression Factor		0.00			1.00	
Incremental Delay, d2		0.3			0.6	
Delay (s)		0.3			16.9	
Level of Service		A			B	
Approach Delay (s)		0.3	0.0		16.9	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	SBL
Lane Group Flow (vph)	1886	1387
v/c Ratio	0.65	0.48
Control Delay	0.7	17.0
Queue Delay	0.2	0.0
Total Delay	0.9	17.0
Queue Length 50th (ft)	0	221
Queue Length 95th (ft)	0	259
Internal Link Dist (ft)	148	115
Turn Bay Length (ft)		
Base Capacity (vph)	2899	2866
Starvation Cap Reductn	277	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.72	0.48

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1804: I-95 NB Off-Ramp & Ives Dairy Road

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2867	638	0
Future Volume (vph)	0	0	0	2867	638	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0	
Lane Util. Factor				0.81	0.94	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				7544	4990	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				7544	4990	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	2986	665	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2986	665	0
Turn Type				NA	Prot	
Protected Phases				2 3	4	
Permitted Phases						
Actuated Green, G (s)				52.5	58.0	
Effective Green, g (s)				52.5	58.0	
Actuated g/C Ratio				0.44	0.48	
Clearance Time (s)					5.0	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)				3300	2411	
v/s Ratio Prot				c0.40	c0.13	
v/s Ratio Perm						
v/c Ratio				0.90	0.28	
Uniform Delay, d1				31.4	18.5	
Progression Factor				0.09	1.00	
Incremental Delay, d2				1.4	0.1	
Delay (s)				4.3	18.5	
Level of Service				A	B	
Approach Delay (s)	0.0			4.3	18.5	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBT	NWL
Lane Group Flow (vph)	2986	665
v/c Ratio	0.91	0.28
Control Delay	5.2	18.9
Queue Delay	3.5	0.0
Total Delay	8.7	18.9
Queue Length 50th (ft)	21	106
Queue Length 95th (ft)	m23	132
Internal Link Dist (ft)	153	140
Turn Bay Length (ft)		
Base Capacity (vph)	3269	2411
Starvation Cap Reductn	217	0
Spillback Cap Reductn	18	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.98	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
1805: Ives Dairy Road East Crossover

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑↑									↑↑↑↑↑	
Traffic Volume (vph)	0	2531	0	0	0	0	0	0	0	0	2867	0
Future Volume (vph)	0	2531	0	0	0	0	0	0	0	0	2867	0
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
Total Lost time (s)		5.0									5.0	
Lane Util. Factor		0.91									0.81	
Frt		1.00									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		5219									7743	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		5219									7743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	2531	0	0	0	0	0	0	0	0	2867	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2531	0	0	0	0	0	0	0	0	2867	0
Turn Type		NA									NA	
Protected Phases		4									2	
Permitted Phases												
Actuated Green, G (s)		58.0									45.0	
Effective Green, g (s)		58.0									45.0	
Actuated g/C Ratio		0.48									0.38	
Clearance Time (s)		5.0									5.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		2522									2903	
v/s Ratio Prot		c0.48									c0.37	
v/s Ratio Perm												
v/c Ratio		1.00									0.99	
Uniform Delay, d1		31.0									37.2	
Progression Factor		0.65									1.18	
Incremental Delay, d2		17.1									2.9	
Delay (s)		37.2									46.9	
Level of Service		D									D	
Approach Delay (s)		37.2			0.0			0.0			46.9	
Approach LOS		D			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	SWT
Lane Group Flow (vph)	2531	2867
v/c Ratio	1.00	0.99
Control Delay	38.2	46.7
Queue Delay	0.0	0.0
Total Delay	38.2	46.7
Queue Length 50th (ft)	~366	444
Queue Length 95th (ft)	#816	m340
Internal Link Dist (ft)	208	130
Turn Bay Length (ft)		
Base Capacity (vph)	2522	2903
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.00	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 2010 Signalized Intersection Summary
1806: Highland Lakes Blvd & Ives Dairy Rd

2045 Build Scenario
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	495	2496	252	14	2991	18	805	41	3	16	62	542
Future Volume (veh/h)	495	2496	252	14	2991	18	805	41	3	16	62	542
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	495	2496	252	14	2991	18	837	0	0	16	62	542
Adj No. of Lanes	2	3	0	1	3	0	3	1	0	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	410	2674	263	93	2424	15	978	342	0	119	125	295
Arrive On Green	0.12	0.56	0.56	0.02	0.46	0.46	0.18	0.00	0.00	0.07	0.07	0.07
Sat Flow, veh/h	3510	4802	473	1810	5320	32	5429	1900	0	1810	1900	1615
Grp Volume(v), veh/h	495	1780	968	14	1942	1067	837	0	0	16	62	542
Grp Sat Flow(s),veh/h/ln	1755	1729	1817	1810	1729	1894	1810	1900	0	1810	1900	1615
Q Serve(g_s), s	14.0	56.4	60.7	0.5	54.7	54.7	17.9	0.0	0.0	1.0	3.8	7.9
Cycle Q Clear(g_c), s	14.0	56.4	60.7	0.5	54.7	54.7	17.9	0.0	0.0	1.0	3.8	7.9
Prop In Lane	1.00		0.26	1.00		0.02	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	1926	1012	93	1576	863	978	342	0	119	125	295
V/C Ratio(X)	1.21	0.92	0.96	0.15	1.23	1.24	0.86	0.00	0.00	0.13	0.50	1.84
Avail Cap(c_a), veh/h	410	1926	1012	141	1576	863	1217	426	0	119	125	295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.0	24.3	25.2	28.2	32.7	32.7	47.7	0.0	0.0	52.8	54.1	49.0
Incr Delay (d2), s/veh	114.7	9.0	19.7	0.3	110.3	116.2	4.8	0.0	0.0	0.4	2.2	390.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	23.9	38.0	45.4	0.5	90.3	101.5	14.5	0.0	0.0	0.9	3.7	75.1
LnGrp Delay(d),s/veh	167.7	33.3	44.9	28.5	143.0	148.9	52.5	0.0	0.0	53.2	56.4	439.5
LnGrp LOS	F	C	D	C	F	F	D			D	E	F
Approach Vol, veh/h		3243			3023			837			620	
Approach Delay, s/veh		57.3			144.5			52.5			391.2	
Approach LOS		E			F			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	61.3		27.7	4.9	73.4		14.0
Change Period (Y+Rc), s	3.0	6.6		6.1	3.0	6.6		6.1
Max Green Setting (Gmax), s	14.0	49.4		26.9	5.0	58.4		7.9
Max Q Clear Time (g_c+I1), s	16.0	56.7		19.9	2.5	62.7		9.9
Green Ext Time (p_c), s	0.0	0.0		1.7	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	117.7
HCM 2010 LOS	F

Notes

User approved volume balancing among the lanes for turning movement.